

ASSESSMENT OF THE

MID-ATLANTIC FOOD PORT CONCEPT AND ECONOMIC IMPACT ON RURAL AGRIBUSINESS



**Technological Infrastructure and Processing
Capabilities as Primary Drivers for Advancement
of the Region's Food and Agriculture Sector**

JANUARY 2019



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ABOUT

This document has been prepared by:



4P Foods has been building a more just and sustainable food system in the Mid-Atlantic region since 2014. Having purchased high volumes of product from small, regionally based producers — largely in Virginia, 4P Foods has been a driver of economic development in the state and region, in particular in rural agricultural communities. With more than 200 regional farm partners and a tech-savvy, targeted outreach and marketing strategy, 4P is developing a networked supply chain that reaches thousands of consumers who demand variety, reliability, and transparency.

Tom McDougall, Founder and CEO



Food Works Group (FWG) connects the dots across the food system to create and amplify social, environmental, and financial value. A small, women-owned strategy consultancy, the firm focuses on food systems planning and business development. Its leadership has decades of experience across the lifespan of projects and initiatives: from early stage (concept ideation, fundraising, market assessments, feasibility studies, and business planning) through program management and, ultimately, evaluation. Clients include non-profits, for-profits, social enterprises, and governmental agencies across the United States.

Sharon Feuer Gruber and Wendy Stuart,
Principals

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EXECUTIVE SUMMARY

Anchored by both physical infrastructure and the power of robust technology, a Mid-Atlantic regional food port has the potential to address key production, logistical, and infrastructure gaps and opportunities along the region's food supply chain. Simply put, the concept of a Mid-Atlantic food port is an aggregation, processing, and distribution network that creates opportunity and efficiencies across the supply chain and spans Virginia, Maryland, West Virginia, Delaware, Pennsylvania, North Carolina, Washington, D.C., New Jersey, and New York. Through this research, the authors aimed to determine (1) which kinds of processing facilities and other physical infrastructure, if any, will best support support small- and mid-size farmers in reaching wholesale supply chains, and (2) if / how technological systems could improve communication and logistics to buoy the region's food and agriculture sector and advance rural economic development, as well as land conservation, inclusive food systems, and other priorities.

Research entailed an extensive literature review related to the region's supply chain, coupled with the development of five case studies, which highlight key successes and lessons learned from organizations from around the country. Additional data was collected from individuals across supply chain functions in the Mid-Atlantic via 77 in-depth phone interviews, 22 in-person meetings, and online survey responses from 222 stakeholders. The process also was informed by the expertise of nine advisors.

The research team concluded that a food port model, as described in this report, has the strong potential to enhance economic development. Through network and relationship development, enhanced processing infrastructure, economies of scale, and data-informed production planning, it could deliver strong financial, social, and environmental value to communities across the Mid-Atlantic.

HIGHLIGHTS OF THE FINDINGS AND RECOMMENDATIONS

Culture and technology. Comprehensive and early engagement across the sector with stakeholders who have a range of priorities will be critical to success. Such broad and deep engagement will need to be embedded into the culture of a food port and include, for example, incorporating a racial equity lens and continuing a high standard of transparency.

A hybrid decentralized-distributed network (with nodes that might connect in only one place) is the strongest fit to fulfill the region's needs, rather than the more common hub-and-spoke model. Nodes in the network could cover the range of supply chain businesses and could make transactions directly without involving any centralized control. A technological platform that is open source would help build trust and mitigate some concerns about how a data algorithm would be structured so as to not favor one party over another. It would need to be intuitive to use and also should build off of already

proven technological systems so as to improve reliability without duplicating efforts. This should be paired with regional value chain coordination that is facilitated by individuals who have relationships with producers representing a range of production methods and scale.

Data and production planning. The more data that run through a food port's technological platform, the more accurate production planning will become, and, consequently, the more a food port could advance the regional food system. Through production planning and coordinated aggregation and distribution among food hubs and other distributors, a food port, as envisioned, can help promote more consistent supply throughout seasonal weather change and across a larger geographic swath. However, maintaining source identification of product beyond a "Mid-Atlantic produced" label is of vital importance.

Better production planning and increased reliability would position a food port to secure contracts with more high-volume purchasers than individual hubs and producers could independently. Early business development with purchasers would help a food port gain traction and de-risk farm growth. If purchasers want to benefit from a local and regional supply chain that meets their volume and quality demands, their commitments will be key.

Processing infrastructure. Data indicate the need for additional large-scale processing and warehousing in Virginia, with satellite warehousing and cross-docking integrated throughout the region. Based on the input of study participants, priority capabilities for a high-volume central facility include poultry and livestock processing, co-manufacturing / co-packing, and light processing and freezing of fruits and vegetables. To pinpoint central and satellite locations, and determine more precisely the types of processing, an in-depth audit and mapping of the region's infrastructure capabilities are recommended.

Market channels and standards. To reach institutions, large-scale grocers, and other high-volume wholesale purchasers, it is essential for a food port to engage as many wholesale market pathways as possible. This includes selling direct to the final wholesale buyer, as well as all those who serve as intermediaries, including food service providers, group purchasing organizations, broadline distributors, and other local and regional distributors. Further, a Mid-Atlantic food port is most likely to succeed if it successfully integrates into existing ordering systems and meets larger industry expectations regarding product quality, packing, delivery turnaround time, and food safety. It is necessary to continue to support pathways for small and mid-sized producers to meet increasingly strict food safety requirements. This can be a highly individualized process for each business operation, and dedicated funding is critical.

Suggested next steps, in brief:

- a comprehensive business plan for the physical infrastructure and technological backbone, including early identification of potential anchor tenants;
- generating the technological requirements for an online platform / application; parallel conversations with distributors regarding supply and technological requirements; creating a road map for development of a platform, and determining cost;
- an expanded audit, beyond the scope of this research, of existing and planned production, processing, warehousing, and distribution assets; mapping the findings with Geographic Information Systems (GIS) to inform a site selection process;
- final determination of the type(s) of processing for a central facility, and engagement of the communities where such a facility might be developed;
- deeper assessment of how a port could contribute to an inclusive regional food system, including diversity within leadership and across the supply chain;
- business development with high-volume buyers so as to secure agreements that will continue the momentum of the project; and
- initiating a capital raise, in particular a blend of non-equity-based philanthropic seed funding, governmental funding, traditional investment, and possibly debt from community-based or non-profit lenders.

High consumer demand for regionally produced foods, the existing technological systems from which to build, and the strong potential for supply chain involvement and partnership all make the timing right for a Mid-Atlantic food port. As with many things, it is commitment and the details that will most significantly dictate success. The support and leadership of diverse partners is of the utmost importance to getting those details right; this means early, ongoing, and meaningful engagement with producers, impacted communities, disenfranchised populations, philanthropic partners, state and local governments, high-volume buyers, and other stakeholders across the supply chain.



ACKNOWLEDGEMENTS

We extend our deep appreciation to the 77 interviewees who took the time to talk with us by phone or in person, often for an hour or more, and to respond to follow-up questions via email. Please refer to Appendix A for the complete list of interviewees.

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Designed by **Bill Buttaggi**, Bill B. Creative

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THESIS AND STUDY GOALS

Farmers and value-added producers, plus other food and agriculture businesses across the Mid-Atlantic regional supply chain, would benefit from more comprehensive and effective infrastructure and technology, helping to bring more regionally produced food to high-volume buyers, and thereby, more consumers. Through network building and enhanced physical infrastructure, a food port could help address the pain points that producers and processors experience when trying to access or expand their sales to wholesale markets — while also reducing the challenges that institutions, grocers, broadliners, and other high-volume purchasers experience when they aim to buy more product from businesses within the region, especially those that are small or middle scale. The concept of a food port bridges these gaps, with a particular focus on the opportunities that could exist from networking food hubs, co-ops, and other distributors. Through this research, the funders and study team aimed to elucidate the following:

- the kinds of processing facilities and other physical infrastructure, if any, that should be prioritized to support small- and mid-size farmers in reaching wholesale supply chains;
- if / how technology systems could improve communication and logistics in the regional food supply chain; and
- which complementary strategies and resources could help grow demand for regionally produced foods to create long term, year-round relationships among buyers and sellers.



KEY TERMS

With increasing attention paid to regional food systems in the United States, the definitions that guide this field are notably evolving. Key terms are defined or characterized below specifically as they relate to this study. Definitions from USDA National Agricultural Library and other widely accepted resources were utilized.

Aggregators bring together various food products from multiple producers and / or processors to one central location, either physical or virtual.

Agriculture of the Middle (AOTM) encompasses a spectrum of farms and ranches that are declining because they are too small to be served well by commodity markets and too large or otherwise unsuited to be served well by direct markets. Most AOTM farms are characterized by their types of production and crops, their business organization, their geographic location, their access to markets, and the production and marketing strategies they adopt to remain viable. Some have the capability to self-distribute. The definition of AOTM farms and ranches is scale related but not solely scale determined; of most concern are farms in the \$50,000 - \$500,000 range of gross sales, but there may be farms with higher or lower gross sales that meet the other criteria. AOTM farms rely on farming as a key source of income for the household. They also tend to be businesses in which one or more family members make the majority of on-site management decisions and contribute substantially to the labor requirements of the operation. (Source: www.agofthemiddle.org and the University of Wisconsin)

Application Program Interface (API) refers to a set of routines, protocols, and tools that allow multiple software components to communicate and interact, even if they are on different operating systems.

An **asset map** is an inventory of a defined region's resources, depicted on a map. Such resources might include, for example, physical assets (e.g., processing facilities, storage facilities), potential partners, and land and water resources. Among other things, asset maps can help identify asset-rich areas and gaps, and can illustrate how food currently flows across a defined geographic area.

Blockchain refers to a distributed, decentralized, public ledger. A series of data "blocks" are stored in a public database with the goal of allowing digital information to be recorded and distributed, but not edited. The blocks store information such as date / time of transaction and price paid.

Broadliners or **broadline distributors** carry a wide assortment of food and non-food products for purchase by a variety of accounts, such as restaurants, institutions, and other venues where food is served. Logistics, transportation, warehousing, and other operations for broadliners are sophisticated and present challenges for interfacing with smaller, local or regional food systems entities.

Commercial kitchens / shared-use kitchens / commissary kitchens are licensed, commercial spaces that are certified for food production. Businesses can rent such kitchens to create their product while

fulfilling regulatory compliance and avoiding capital expenditures required to build or lease their own space. Kitchen incubators and accelerators provide kitchen rental space as well as additional services such as package design, marketing, and distribution.

Commodity crops are crops that are traded. Commodity crops are grown in large quantities, undifferentiated, storable, transportable, and relatively nonperishable. Examples include corn, wheat, soybeans, sugar beets, and cotton. Some table crops such as apples are also considered commodity crops.

Consumer Packaged Goods (CPGs) are consumable products that are intended to sell quickly and at a relatively low cost compared to durable goods, like appliances and vehicles. In this study, CPG refers to the broader category of packaged foods and beverages.

Direct to consumer refers to a sales channel by which products are sold directly to consumers by producers without the use of an intermediary source, such as a wholesaler or grocery store.

Distributors are companies that move raw and processed food products through the supply chain. They aggregate food from multiple producers and often process and package it. They generally do not produce raw ingredients. This broad term includes food hubs, co-ops, and broadliners, as well as regional distributors. **Regional distributors** work specifically within a smaller, defined region such as the Mid-Atlantic. Examples include Keany Produce, Shenandoah Foods, and Produce Source Partners.

Electronic Benefits Transfer (EBT) is an electronic system that allows a recipient to transfer their government benefits from a federal account (like Supplemental Nutrition Assistance Program) to a retailer account to pay for products received. This is typically done via electronic card like a bank card, which is referred to as EBT. (Source: USDA Food and Nutrition Service)

Enterprise Resource Planning (ERP) is management software that integrates core business processes into a single system of integrated applications; this can include manufacturing, supply chain, and procurement, among others.

Equity, namely racial equity, is achieved when race no longer determines one's socioeconomic outcomes, and when everyone has what they need to thrive, wherever they live. The process of achieving racial equity is sought by meaningfully involving those most impacted by structural racial inequity into the creation and implementation of institutional policies and practices that impact their lives. (Source: Center for Social Inclusion)

Farmers is inclusive of crop producers, ranchers, and those engaged in aquaculture.

Farms refer to plots of land devoted to agricultural purposes, the raising of domestic livestock, and / or the artificial cultivation of fish or seafood, also called aquaculture.

Farm succession refers to the transfer of a farm business, generally from a retiring farmer. This process may or may not include real estate assets.

Food hubs are centrally located facilities with a business management structure facilitating the aggregation, storage, processing, distribution, and / or marketing of locally / regionally produced food products. (Source: USDA) Hubs have existed for several decades in some African American farming communities in the South and are called food packing sheds. (Cooper, D., 2018)

Food port refers to an entity that aggregates from processors and other aggregators, like food hubs, co-ops, and regional distributors, and also relies on a strong supporting technological backbone. It might also have the capabilities to perform other supply chain functions, such as processing and distributing, or those might occur through a partner business that is co-located. The intention of a food port is to support a more resilient regional food system through effective coordination and networking across scales and with greater efficiencies.

Food Safety Modernization Act (FSMA) was enacted by Congress in 2011 with the intention of shifting the focus from foodborne illness / incident response to illness / incident prevention. This means stricter food safety requirements throughout the food supply chain, phased in over several years. FSMA is under the jurisdiction of the Food and Drug Administration, which has finalized seven rules thus far. (Source: FDA) The act is perceived differently across the industry: There are those who believe the cost-benefit analysis is clear and it will help keep consumers safe, and there are those who believe the act adds undue burden to smaller scale producers.

Food Service Providers (FSPs) provide prepared food to customers. It is a broad term that includes, for example, restaurants, institutions that have their own chefs, and vendors that fully prepare food at a large establishment's on-site kitchen. Most institutions contract with an external FSP (like Sodexo, Revolution Foods, Aramark, D.C. Central Kitchen, and Bon Appétit Management Company) for their food service operations, but some opt to do all of their catering and food preparation independently. The latter are known as *self-ops*, defined on the next page.

Group Purchasing Organizations (GPOs) are large entities that leverage the purchasing power of a group of companies so that those companies (often non-profit health care institutions) can obtain a discounted price on goods.

Institutions are established organizations or corporations, especially of a public character. Institutions may be for-profit, non-profit, or governmental entities, and include colleges and universities, senior living facilities, prisons, hospitals and health care systems, and K-12 schools and school systems, among others.

Inventory management is an element of supply chain management involving the monitoring of the quantity of food items available in a storage facility, as well as oversight and control of the product integrity. Small and AOTM producers often cite managing inventory of perishable goods in real time as a significant challenge.

Livestock are domesticated animals raised in an agricultural setting to provide items such as meat, eggs, milk, and wool.

Mid-Atlantic region is the geographic context of a regional, networked distribution system that, for the purposes of this study, includes Virginia, Maryland, the District of Columbia, Delaware, West Virginia, Pennsylvania, North Carolina, New Jersey, and New York.

Open source refers to software for which the original code is made freely available for use, modification, and redistribution by the public.

Organic production is a concept and practice of agricultural production that focuses on production without the use of synthetic inputs and does not allow the use of transgenic organisms. USDA's National Organic Program has established a set of national standards for certified organic production. (Source: USDA)

Processors are entities that convert raw foods into a variety of convenient, ready-to-use end products, including everything from chopped and pureed produce to CPGs. Processors may also package and ship processed items.

Producers are farmers, including aquaculture farmers, ranchers, CPG makers, and watermen / fishers. They produce crops, breed livestock or seafood, feed livestock or seafood, harvest wild seafood and other foods, or make perishable packaged goods.

Ranches are large farms, especially those used for raising beef cattle, horses, or sheep.

Regional food system practitioners (practitioners) have a supporting or facilitating role in the regional food system, and include Extension agents, state and county agriculture development officers, state and county economic development officers, representatives of non-profit or other organizations focused on production, and representatives of organizations or businesses focused on financing or economic development.

Rural economic development supports economic and quality of life improvements for people in sparsely populated areas. One key challenge is determining how businesses can be supported by the available labor force.

Seafood refers to edible shellfish and finfish, including wild and those raised in marine and aquaculture environments.

Self-operated institutions (self-ops) are institutions that do all of their food preparation independently, without engaging a traditional FSP. Self-ops typically buy their food from distributors, and they may be hospitals, universities, senior / rehabilitation centers, and K-12 schools, among others.

Small farms are generally classified based on revenue rather than physical size, with gross sales less than \$250,000. Often the farm owner will supplement farm revenue with off-farm income. (Source: USDA)

Specialty crops are fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops. (Source: USDA) For the purposes of this study, specialty crops generally refer to fruits and vegetables.

Supply chains are systems of companies, people, activities, information, and resources involved in moving food from producer to end-use customer. A regional supply chain operates entirely within a specific region, from producer to end user.

Sustainable has tremendous variability in its definition. It is characterized in this study as socially inclusive, economically viable, and with a net impact on the environmental ecosystem that is neutral or regenerative.

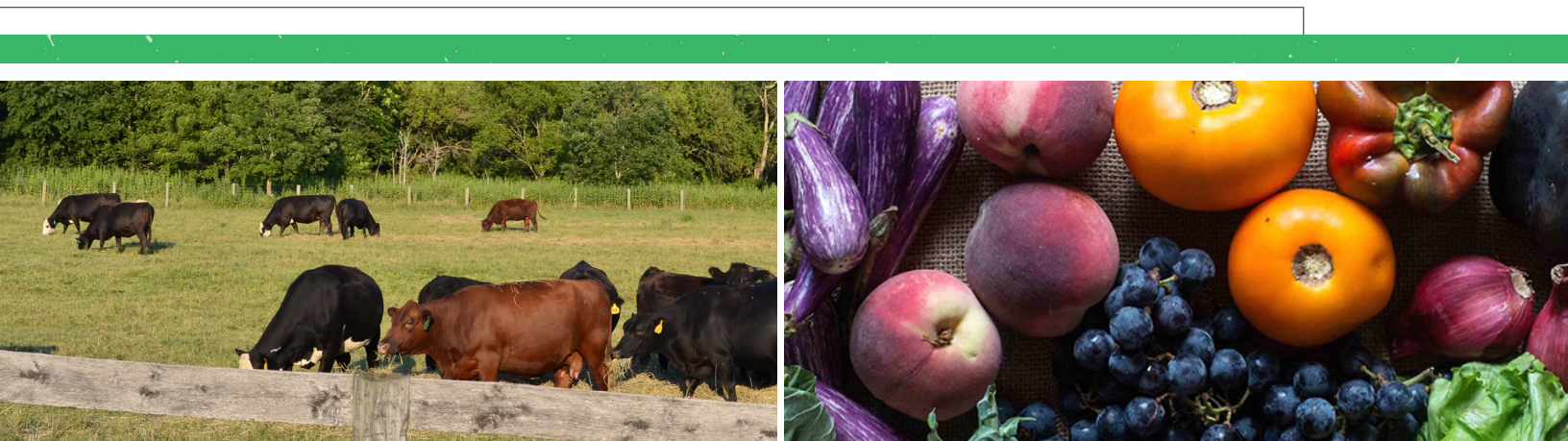
Traceability is the ability to track individual food items through all stages of production, processing, and distribution. This allows for efficient and effective recalls and other corrective actions.

Transparency refers to the clarity of knowledge associated with the supply chain, including farming practices, labor, packaging, transportation, and more. It is a key component of a values-based food supply chain, and is the underpinning of consumer confidence and trust.

Value-added product refers to food products that have been changed in physical state or form (such as milling wheat into flour or making strawberries into jam), resulting in an expanded customer base for the raw ingredients and a greater portion of revenue available to the producer. The definition also can include value-enhancing production methods, such as organically produced products, and/or the physical segregation of a product, such as an identity-preserved marketing system. (Source: USDA Rural Business Development)

Value chain or values-based chain is a food supply chain that emphasizes shared values, vision, transparency, and decision-making; value chains place special emphasis on quality of product and social and environmental values. The chain includes all strategic partners from production through consumption, including, for example, all those who are involved in processing, operations, logistics, and sales.

Wholesale refers to the sale of food products in quantity for resale by retailers, institutions, or restaurants, among others.



METHODOLOGY

1. Establishment of an advisory team: The research team recruited nine advisors with expertise in agriculture, economic development, food hubs, equity, public health, and/or regional supply chains. This informal advisory panel was charged with the following tasks:

- support with identifying individuals to interview or survey, including making introductions if needed;
- provide subject matter expertise;
- review questions for interviews; and
- review a draft of the report.

The advisory team is listed in the acknowledgements.

2. Defining the Mid-Atlantic region: Based on physical distance, relationships between hubs, existing physical infrastructure, and topography, Food Works Group and 4P Foods defined the Mid-Atlantic region for the purposes of this study to include Virginia, Maryland, Washington, D.C., Delaware, Pennsylvania, North Carolina, West Virginia, New Jersey, and New York. Interviewees in New York, New Jersey, and North Carolina were primarily food hubs.

3. Review of existing reports and assessments: Reports and other documents that covered relevant subject matter were reviewed with the goals of learning from colleagues and avoiding the duplication of efforts. Such reports included, for example, Ecotrust's *Oregon Food Infrastructure Gap Analysis*, Detroit Food Policy Council's *Economic Analysis*

of Detroit's Food System, Metropolitan Washington Council of Government's *What Our Region Grows* (2012 and 2018 preview), and dozens of others.

4. Research of consumer trends: An assessment of consumer food trends was included so as to contextualize the other components of the research. Key findings can be found in the discussion starting on page 19.

5. Case studies: The research team conducted in-person and phone interviews with five food hubs and other entities around the country in order to apply their learnings to the Mid-Atlantic region. Recurring themes, background, key successes, and lessons learned are included in the case studies section.

6. Online survey and participants: A unique set of online survey questions was created for each of five participant channels across the Mid-Atlantic region: producers, processors, purchasers, distributors, and food system practitioners. Survey respondents self-identified as belonging to one of these channels based on their primary revenue source. They completed the corresponding set of survey questions based on this initial identification. Please see Appendix C for sample questions from each channel.

Outreach to more than 40 organizations was conducted to help distribute the survey link, including to food councils, county departments of economic development, state and county departments of agriculture, universities

and Extension services, food hubs, membership organizations, and more. Additionally, the survey link was distributed among the research team's colleagues and active listservs, and the advisory team was asked to share it among their networks, as well. The survey was completed by 222 participants, and follow-up was conducted with specific survey participants, especially those with outlier responses.

- 7. Selection of interviewees:** Together with the advisory team, the research team compiled a list of participant categories determined to be essential to understanding gaps and challenges within the value chain in the Mid-Atlantic region. Example participant categories included producers of different scales; food hubs and other regional distributors, processors, broadliners, and GPOs; state and county agriculture practitioners; economic development practitioners; and buyers. Geographic diversity of interviewees across the Mid-Atlantic region was also essential, although more focus was intentionally on Virginia, the home state of the project's funders.

These categories were populated with more than 120 potential interviewees based on Food Works Group's and 4P Foods' networks, the funders' and advisory team's networks, and the support of other colleagues. Approximately 40 potential interviewees could not be reached or scheduled (with a minimum of three outreach attempts) or declined to be interviewed, though several of these opted to complete the online survey.

- 8. Interviews:** Food Works Group developed questions for each participant channel, as well as unique questions for each entity to be interviewed. Seventy-seven interviews were conducted with stakeholders across the value chain, by phone and in person (and two via email correspondence). Each interview lasted approximately one hour. (Sample interview questions are included in Appendix B.)
- 9. Interview follow-up:** In some cases, additional questions via phone or email were needed, for a total of up to 90 minutes of total interview time with those interviewees.
- 10. Formal meetings:** In addition to stakeholder interviews and the online survey, 22 in-person meetings were held across the region and country. They included seven food hubs, various health care organizations, funders in the food and agriculture space, AOTM producers, restaurateurs, elected officials, and technology companies.
- 11. Analysis:** Interview notes and survey responses were classified and analyzed based on approximately 40 codes, for example, transparency, logistics, labor. Recurring themes were categorized and provided the basis for the findings and recommendations in this report.

LIMITATIONS:

- To the research team's knowledge, no Amish or Mennonite food system participants filled out the online survey.
- Literature review, case studies, and primary research were conducted by phone, email, online survey, at meetings, and via trusted publications. Federal Communications Commission (FCC) data were used to assess rural broadband access. Census data were not used.
- The online survey relied on a system of self-identification of respondents based on their primary revenue source, and this determined the set of questions presented to each respondent. The research team recognizes that this is a simplification, as many food systems stakeholders have multiple roles, including part-time farmer, both processor and distributor, and more. In total, 115 survey respondents (51.8 percent) identified as participating in an additional, secondary part of the supply chain. Survey respondents were not asked specific questions for this additional area of participation.

ASSUMPTIONS:

- Federal policy on agricultural subsidies is static.
- Broadband access is improving but still limited in rural areas.





DISCUSSION

The remarkable rise of local food in the United States is motivated by a confluence of factors: increasing health consciousness among Americans and the growing association between unhealthy diets and preventable chronic disease, enhanced awareness of the environmental costs of conventional agriculture, and a growing desire to support regional economies and farmers as opposed to large multinational corporations.²⁰ Consumers are demanding greater transparency and knowledge of their food sources, in part as a result of the widespread media coverage of foodborne illness outbreaks and a growing weariness of the “the nutritional quality of food products offered by the conventional food system.”¹³ Consumer demand cuts across income levels. For example, SNAP redemption at farmers markets reached \$18.8 million in 2014, more than a fourfold increase from \$4.2 million in 2009.¹³ This increase also was driven by greater investment in EBT, other technology, federal funding for matching programs, and more markets participating in the program — investment and participation that are directly linked back to demand. Said a long-time manager of a full-service supermarket, who was interviewed for this research:

Margins are better on warehouse items, but if you don't do any local, you'd be shooting yourself in the foot. You can't make 35 percent on everything, so local is a driver, at a 10-15 percent margin. It gets the customer in the store and then you'll get more profit throughout.

Millennials' unique food preferences will shape the food landscape for the foreseeable future.

Getting the customer into the store is more critical than ever, as dining out is increasingly the popular option. In 2016, for the first time ever, Americans spent more money at restaurants and bars than grocery stores.²¹ It is likely that much of this demand for food away from home is driven by millennials, those born between 1981 and 1996, as they eat at restaurants and bars 30 percent more than any other generation.²² Across the board, this age group is demanding convenience and time savings but does not want to sacrifice freshness. They also place a high value on drinking and dining experiences, and they shop at grocery stores with less frequency than any other generation.²² Additionally, single urban households and young couples without children — demographics that likely include many millennials — overwhelming claim they are willing to pay more for local food, at 95 percent and 78 percent, respectively.¹³ Restaurants are taking notice. A National Restaurant Association survey from 2016 found that not only do “92 percent of surveyed fine-dining restaurateurs plan to add a locally sourced item to their menus this year, but so do 73 percent of casual-dining

operators, 63 percent of fast-casual operators, 50 percent of family-dining operators, and 35 percent of quick-service operators.”¹³ Along with millennials’ preference for local food, they are more likely to buy organic products and eat plant-based diets, and on average, they have the lowest household expenditure on both red and white meat compared to other generations.²² Millennials’ unique food preferences will continue to shape the American food landscape for the foreseeable future; by 2019 they will surpass baby boomers as America’s largest generation.²³

Although awareness of and demand for local food is undoubtedly high, there is no standard definition of “local,” even among federal programs. For example, the 2008 Farm Bill defined local food as any product consumed within 400 miles of its production, whereas FSMA sets the boundary at 275 miles.¹³ The two programs agree, however, that local food broadly applies to products produced and consumed within the same state.¹³ In *Harvesting Opportunity*, the Federal Reserve Bank of St. Louis makes the important point that the federal government’s “broad functional definition of U.S. local food systems...is designed to serve the market development needs of even the most geographically remote areas.”¹³ Within a country as expansive and culturally diverse as the United States, a broad interpretation of local allows regions with different populations, densities, and landscapes to set terms that work for their unique communities. Furthermore, expanding the conversation beyond the “local” scale to that of “regional” might better advance the goals of the movement, which is to promote self-sufficiency and resilience, broadly.¹⁸ Because local is often delineated within

a single state or within a 100-mile radius, it is ill equipped to address problems that exist across county, state, and even national boundaries. In contrast, “regional-scale food systems consider at a landscape scale certain needs and limitations, such as transportation efficiencies, broad land use and protection, energy use, production systems, and climate.”¹⁸ Adopting a regional approach to food systems, such as with a Mid-Atlantic food port, could bring about more effective coordination and networking across scales, greater efficiencies, and an amplified impact toward the ultimate goal of a more resilient food system.

Collectively, the Mid-Atlantic region’s swath of the Eastern seaboard is home to nearly 70 million people, roughly 21 percent of the entire United States, as well as some of the largest metropolitan communities, including, but not limited to, New York City, Philadelphia, Baltimore, and the greater Washington, D.C. metro area. This region also boasts high levels of agricultural production — roughly 37.9 million acres of land in production and almost 300,000 farms in operation according to data from USDA’s National Agricultural Statistics Service for 2017.^{1,2,3,4,5,6,7,8} However, this agricultural output is dominated by commodity crops, namely hay, alfalfa, corn, soybeans, and grain, as well as livestock, obscuring the percentage of output dedicated to fruit and vegetable production. At the same time, large-scale fruit and vegetable production on a national level is consolidated to a handful of geographic areas, shipped across long distances, and sold at lower prices. This duality makes it difficult for smaller, more diversified farms to grow food at the scale necessary to meet the demand of major urban centers. In fact, studies of the

local food systems of Baltimore, Philadelphia, and the Washington, D.C. metro areas all concluded that the current supply of fruits and vegetables produced within 100-200 miles of the city were nowhere close to meeting consumer demand.^{9,11,12}

One key contributing factor to this situation is that farmland is increasingly subsumed by urban development. In the Washington, D.C. metro area, “approximately 118,599 acres (7 percent) of farmland in the region was lost to residential and commercial development” from 2002 to 2007, according to a 2012 report.¹¹ This leads to greater fragmentation of farms, and farmers traveling longer distances to bring their food to market and to access services — all at a serious cost to the financial sustainability of small- to mid-scale operations.¹¹ Further, the 2010 Greater Philadelphia Food System Study notes that there is a “deficit of nearly 2.8 million acres of farmland ... needed to supply the current population,” and the Baltimore Food System Resilience Report cites a 2015 USDA estimate that “the state’s overall vegetable production meets only 11 percent of consumer demand.”^{9,12} The only crops at the time for which statewide production in Maryland met consumer demand for the city of Baltimore were chicken, lima beans, and watermelon.⁹ In order to increase human consumption of food produced within the region while also meeting the consumer demand throughout the Mid-Atlantic, more acreage dedicated to fruit and vegetable production is necessary.

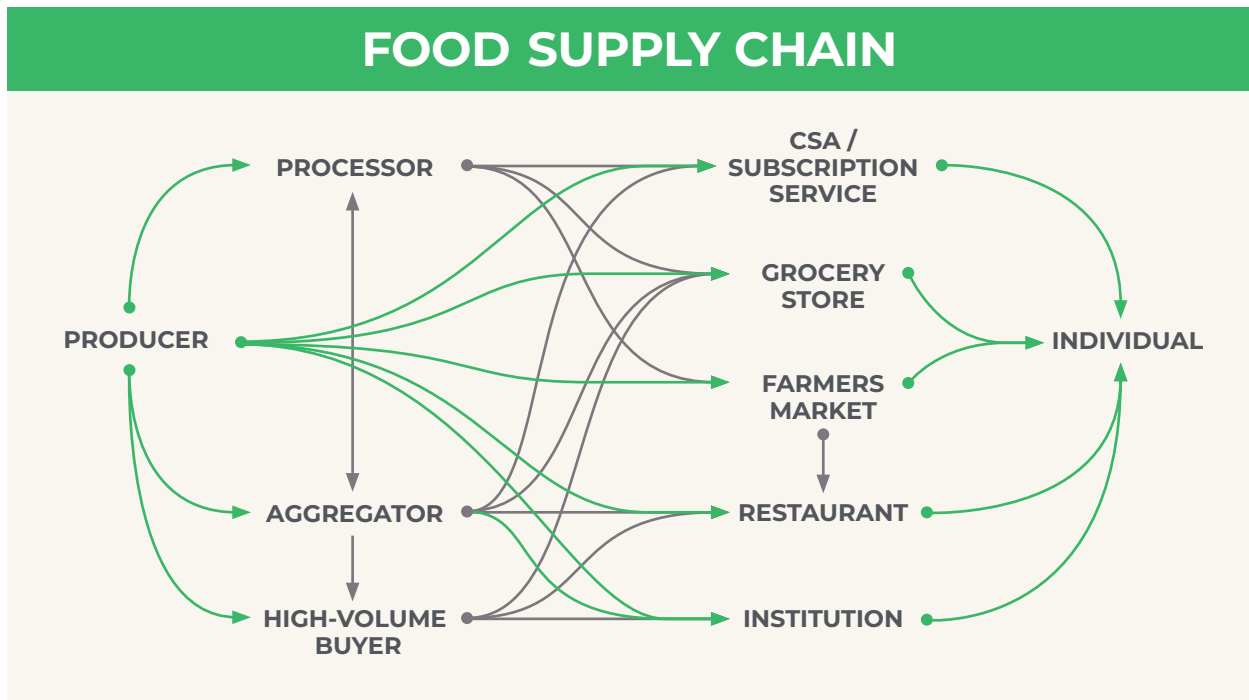
Despite these challenges, consumer demand for local food has grown exponentially during the past two decades. In 1992, USDA estimated that direct sales of edible farm products for human consumption totaled

\$404 million; by 2012 that number had increased by 223 percent to \$1.3 billion annually.¹³ As more consumers have sought places to purchase food grown closer to their communities, it has become increasingly popular to visit one’s local farmers market, join a Community Supported Agriculture (CSA) program, or become a customer of a multi-farm food delivery service. In fact, from 2006 to 2014 the number of new farmers markets grew 180 percent.¹⁵ These “direct-to-consumer” markets are still the predominant channel by which smaller farms connect with customers in urban markets within a few hours’ drive of their operations; there are at least 100 CSAs and 800 farmers markets across Delaware, Pennsylvania, Maryland, Virginia, and Washington, D.C. as of 2016.¹⁹

There is emerging evidence, however, including from stakeholders interviewed for this research, that the popularity of farmers markets across the region may have reached its saturation point over the last few years. This is a worrisome trend for smaller-capacity farms, which have increased in number by 28 percent over the past three decades.²⁰ Further, long-established farms are not immune to this trend. One vendor at the popular Dupont Circle Farmers Market in Washington, D.C. told *The Washington Post* in 2016 that his annual sales from the market dropped by as much as \$50,000 in comparison to his peak years in the late 2000s and early 2010s, when he could expect to take home as much as \$200,000; other farmers have also reported drops in sales by 30 to 50 percent at markets across the Washington, D.C. region.¹⁴ A joint study by the Farmers Market Federation of New York, Cornell Cooperative Extension of Broome County (NY), Community Involved in Agriculture (CISA), NOFA-VT, Maryland

Cooperative Extension, and the Farmers Market Association of Maryland is under way to determine precisely the reasons for declines in market attendance.¹⁷ Many hypothesize that sales are being impacted by (1) the increasing number and popularity of prepared food stands at markets, which leads consumers to purchase a one-time meal rather than fresh produce to bring home; and (2) the over-saturation of markets themselves, which can lead to an individual market not having high enough attendance to make it profitable for vendors.¹⁴ Across the board, if direct-to-consumer markets continue to be less reliable, smaller-scale farms will need to diversify their business models to remain in operation.

The pathways to market for various categories in the supply chain are remarkably similar, with the greatest distinction stemming from scale of production. The below graphic depicts how produce, animal proteins, grains, and legumes flow from producer / harvester to individual consumer. There is opportunity for each category to grow in the Mid-Atlantic, and enhanced distribution channels through a food port model could potentially facilitate sector growth.



Adapted from Traverse Food.

ONLINE SURVEY SNAPSHOT

PRODUCERS: Approximately how much of your product is distributed within the Mid-Atlantic region (VA, MD, DE, PA, DC, NC, WV, NJ, NY)?

- 71 out of 86 respondents (or 82.6 percent of producers): about 66+ percent
- 11 (or 12.8 percent of) producers chose either '1-15 percent' or 'None'

ANALYSIS: This depicts the heavy reliance on regional demand by the producers who completed the survey. Conversely, almost 13 percent of respondents indicated their reliance is either quite low or none.

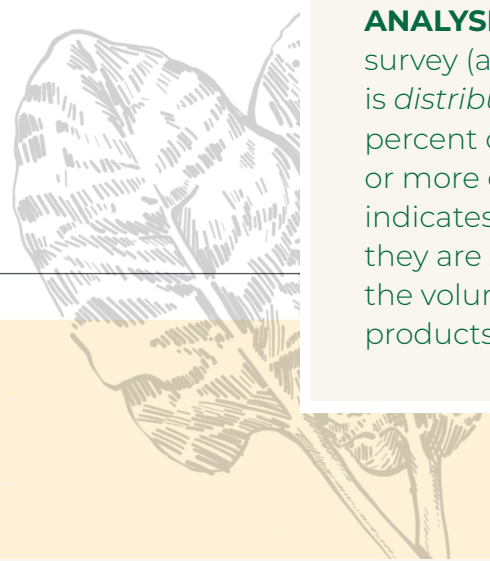
DISTRIBUTORS: Approximately how much of the product you process and/or distribute is produced within the Mid-Atlantic region (VA, MD, DE, PA, DC, NC, WV, NJ, NY)?

- 0 out of 25 respondents: 31-65 percent
- 14 out of 25 respondents: 66+ percent (or 56 percent of distributors)

DISTRIBUTORS: Approximately how much of your product is distributed to customers within the Mid-Atlantic region (VA, MD, DE, PA, DC, NC, WV, NJ, NY)?

- 21 out of 25 respondents: about 66+ percent (or 84 percent of distributors)

ANALYSIS: For 84 percent of the distributors who answered the survey (all based in the region), more than 66 percent of their product is *distributed within* the defined region. At the same time, only 56 percent of the same group of distributors estimates that 66 percent or more of their products are *produced within* the region. This indicates that they are largely serving the regional population, and they are sourcing a substantial amount from within the region, but the volume sourced regionally does not reflect the demand for their products overall.





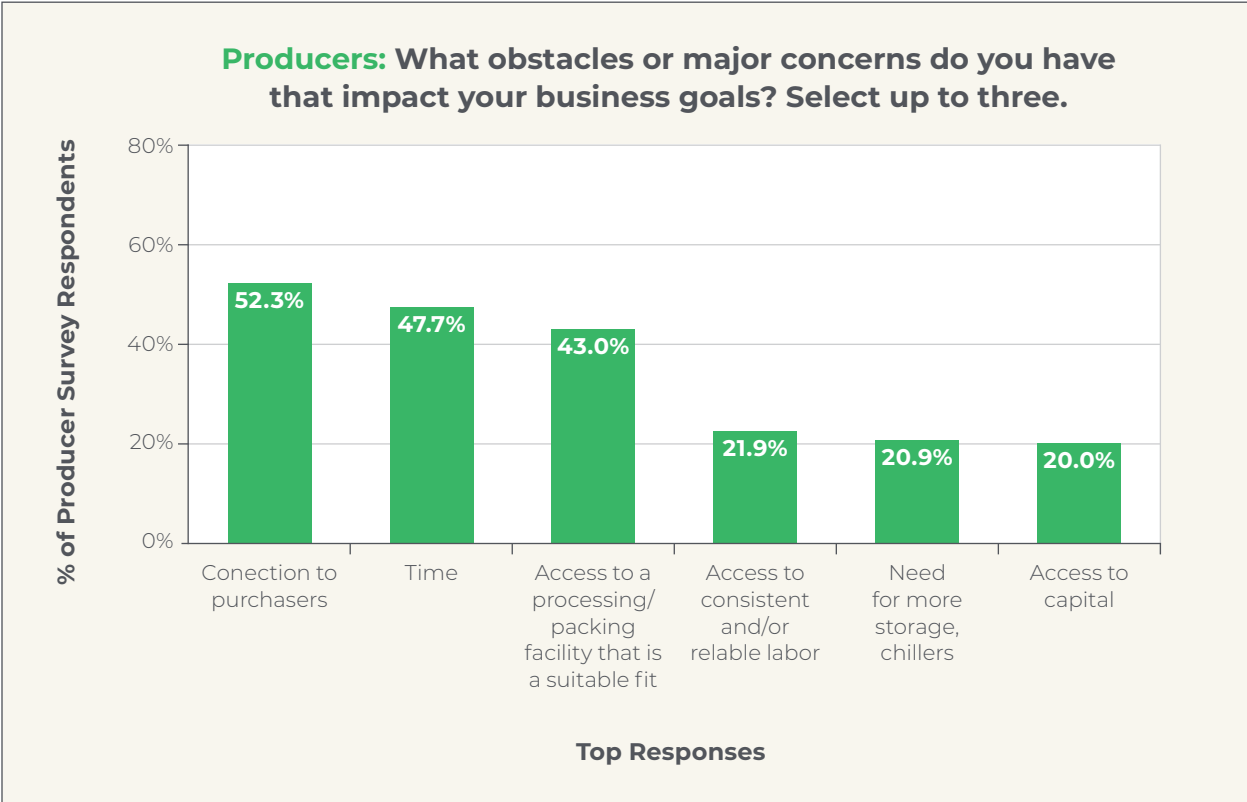
CASE STUDIES

Recurring themes were raised among the five food hubs/innovation clusters that were researched, including Food Enterprise Center (Viroqua, Wis.), The Redd on Salmon Street (Portland, Ore.), Regional Agricultural Center (southern Maryland), Agriculture and Food Technology Park (Geneva, N.Y.), and West Louisville FoodPort (West Louisville, Ky.).

THEME 1: Need for physical and technological infrastructure.

Organizations from coast to coast, in both rural and urban environments, all pointed to the need for physical and technological infrastructure to support regional farming

and agriculture of the middle, or AOTM. Without this infrastructure, the local farming system is unable to meet the market’s demands for volume and reliability, hindering the potential for success. Key areas of physical investments include commercial-level resources such as kitchens and value-adding facilities, warehousing, loading docks, specialty equipment, and business development support. Key areas of technological investment cited include inventory tracking and synthesizing, dynamic pricing management, supply chain transparency, and knowledge-sharing repositories.



The results from the online survey on the previous page parallel the findings of the case study review. Making connections throughout the supply chain, namely with purchasers, is seen as a major obstacle for producers to achieve their business goals, in addition to needing more infrastructure, specifically access to processing / packing facilities and more cold storage.

THEME 2: Supply chain criticality.

Regional and AOTM producers face a significant hurdle in the aggregation and distribution of goods. Maryland's Regional Agricultural Center, Oregon's Redd on Salmon Street, and others named the challenge of providing reliable quality and quantity of supply as a critical impediment to their mission, stability, and growth, as well as the growth of their producers. Without the development of physical and technological infrastructure and centralized support, producers struggle to meet the demands of high-volume wholesale markets. Across the country, building this infrastructure has allowed for supply-chain solutions like drop-off locations that can reduce the cost of distribution, centralized aggregation, storage, and value-added capabilities that promote new market opportunities, among other benefits.

THEME 3: Supporting entrepreneurs.

From Oregon's Redd on Salmon Street to Wisconsin's Food Enterprise Center to New York's Agriculture and Food Technology Park, organizations across the country are using a tenant model to support local entrepreneurs and, in turn, grow the regional economy. For example, the Redd's anchor tenant is their distribution partner, and another tenant, who began as a food business, pivoted to a new business model and now utilizes the rented kitchen by subletting to and supporting other small food businesses.

Each of the following case studies tackles the challenges faced by small-scale and AOTM producers in different regions and the ways in which infrastructure and increased support can apply to the Mid-Atlantic region, as well, ultimately helping to mitigate the bottlenecks and limitations of the current system.



FOOD ENTERPRISE CENTER (Viroqua, Wisconsin)

BACKGROUND

The Food Enterprise Center serves as an entrepreneurial resource to expand business capacity, increase revenue for area producers, and create food and wellness industry jobs in the Vernon County region. A multi-tenant aggregation, storage, processing, and distribution center, it was created and is owned and managed by the Vernon Economic Development Association, a 501(c)(3) nonprofit organization working to bolster the economy in western Wisconsin.

The center is located in a small, rural county with a population of 29,000 and a primarily agricultural economy. As the county is not conducive to large commodity farming due to an abundance of hills and coulees, production transitioned from tobacco to a dense population of small-acreage organic farming, with 220 organic farms in the county. The Food Enterprise Center focuses on serving as an accelerator space, providing the infrastructure and support needed for new and growing entities along the food value chain. Businesses benefit from on-site technical assistance, individual business counseling, access to resources, peer mentoring, and the synergy of co-locating with like-minded people.

Initial funding for the center entailed a \$2 million Economic Development Administration grant from the U.S. Department of Commerce to turn the shuttered 100,000-square-foot National Cash Register building into a food and wellness facility in the third poorest county in the state. This funding covered two years of upgrading the facility, including building out

two commercial kitchens and creating other infrastructure for business development. The Food Enterprise Center has had a broad range of partners, including USDA's Rural Development programs, as well as support from various private foundations and other funders. In addition, a developers' agreement was implemented to utilize Tax Increment Financing (TIF) revenues as collateral on a Midwest disaster area bond for \$1.8 million that they obtained after being declared a national disaster area from two major floods. This collateral enabled them to recruit five banks across three counties in the region to participate in that bond.

The Food Enterprise Center is modeled around a tenant structure, with custom-designed and -built tenant space created to meet the specific needs of each entrepreneur. The center has 20 business tenants and is working toward a goal of becoming fully funded through tenant rent. One example tenant is the Fifth Season Cooperative, which benefits from having producers, processors, distributors, and buyers all represented on the board of directors. The co-op works with nearly 100 members to move local food into local and regional institutional food service markets, serving as a broker for value-added products and bringing fresh produce into the Food Enterprise Center for distribution through broadline distributors such as Reinhart Food Service. With help from one of their processor members, Fifth Season has also developed their own brand and line of frozen vegetable blends for institutional and retail grocery markets. Other tenants and their products include bourbon barrel-aged maple syrup, artisan soda beverages,

fermented vegetables, fresh produce, a candy maker, a food recovery program that supplies food pantries with fresh food, and a coffee roaster.

The Food Enterprise Center cited the overall size of their facility, at 100,000 square feet on 15 acres, as a key factor in their ability to attract tenants and their overall success. Within this space, the center provides access to critical infrastructure such as loading docks, access to shipping carriers, commercial kitchens and coolers, and warehousing space. After six years of operation, the Food Enterprise Center is nurturing an innovative, entrepreneurial environment and is building wealth in the region. It is an economic development strategy based on community development, creating both a facility and a network that attracts entrepreneurs and investors alike.

KEY SUCCESSSES

- As of August 2018, 75 jobs have been created, along with an increase to the overall tax base and wealth in the community.
- In just six years, the 100,000-square-foot space is fully utilized, with an additional 20,000 square feet potentially available if needed.
- Since 2010, there has been no turnover in a pool of about 20 tenants.
- Some tenants have grown the scale of their enterprise to service international markets.
- Every tenant has created additional jobs within their business since arriving at the Food Enterprise Center.

LESSONS LEARNED

- Using an asset map helps to determine who your partners should be and what the partnership should look like. Work to build these relationships and to identify your champions and sponsors. More on the relevance of asset mapping for a food port model is in the Findings section.
- Build a vision that is grounded in community ownership of the mission and can easily be articulated.
- Distribution can be a challenge. Leveraging an established organization with which institutions are already comfortable has helped to overcome some of these hurdles. **“Use their wheels. You don’t need your own.”**
 - **Susan Noble**, Executive Director of the Vernon Economic Development Association

THE REDD ON SALMON STREET (Portland, Oregon)

BACKGROUND

The Redd on Salmon Street project is the largest of more than 40 investments made by the capital investment fund and development team of Ecotrust, a 501(c)(3) organization. The Redd project supports and grows the sustainable food movement in the Pacific Northwest by partnering with tenants that move this mission forward. Inherent to Ecotrust's and Redd's core values is empowering and providing space for those that have been marginalized in the community. To meet this goal, Redd will continue to balance profit-driving activities, such as hosting corporate events, with work-supporting, mission-aligned clients and initiatives. As stated by Emma Sharer, Redd Operations Manager, "The Redd is looking to create a new kind of food economy, one that drives radical, practical change, puts equity at the center, and builds businesses as a force for good."

Over the last 27 years, Ecotrust has dedicated resources to support projects that align with their values of social equity, economic opportunity, and environmental well-being. Ecotrust's investment fund, along with 14 private social-impact investors, seven individual and foundation lenders, and New Market Tax Credits, financed the building and helps to subsidize tenant rents, which are below market rates. Ecotrust also obtained grant commitments, including one from a local electric company to fund a solar roof.

The Redd project consists of two buildings located on two full city blocks in Central Eastside Portland and is part of a revitalization effort. Only one of the two buildings, Redd West, is actively utilized at this time. The Redd West facility entails three commercial kitchens, cold storage, and warehousing and distribution capabilities. The second building, Redd East, is undergoing restoration and is expected to consist of event, office, and additional flexible space. When both buildings are open, the Redd will have 80,000 square feet at its disposal; approximately 30,000 square feet are utilized currently.

The anchor tenant, B-Line Sustainable Urban Delivery, provides Redd's warehousing and distribution capabilities. B-Line serves as a connection between regional food producers and the retailers looking to carry those products. B-Line does not take ownership of the goods but instead connects buyers with suppliers, creating some aggregation opportunities and handling fulfillment (as needed) and last-mile distribution. Producers drop off their product at the Redd, and B-line then handles last-mile distribution using a truck and electric-assist tricycles. Though no formal regional boundaries are set, most of the producers are concentrated within 6 hours of Portland.

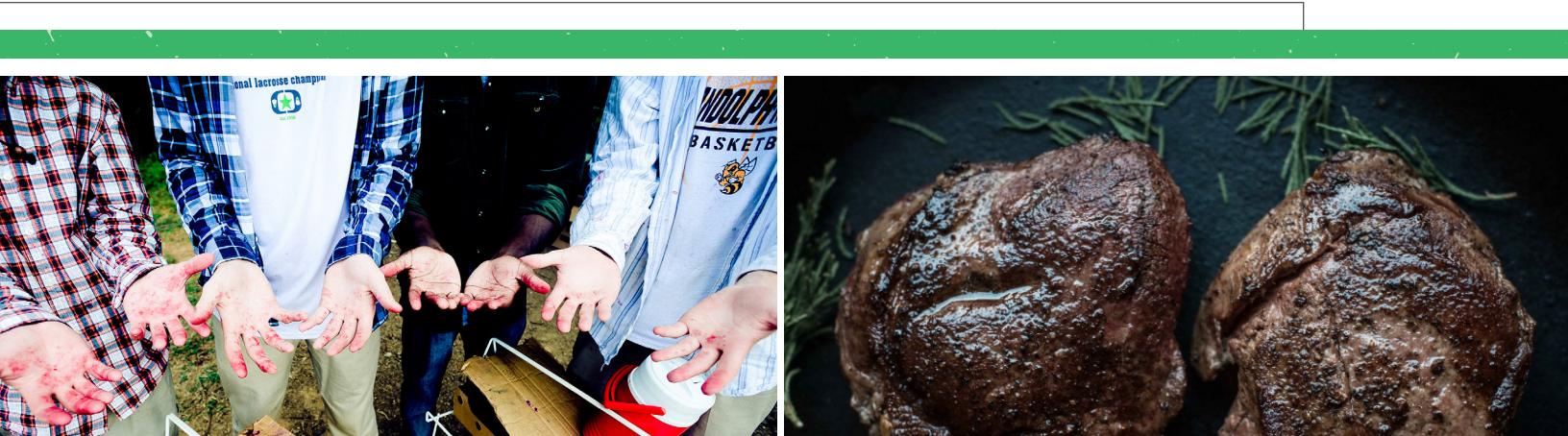
Within Redd West, the five anchor tenants have 5-year leases, which they can sublease at their own discretion. Tenants are charged a cost per square foot that is significantly under market value, with rents ranging between \$1-\$3 per square foot despite a typical cost of \$7 per square foot for dedicated office space in Portland. Overhead for the Redd West building comes to about \$600,000 per year and is billed back to the tenants.

KEY SUCCESSSES

- The Redd maintains five anchor tenants, including a tenant / partner that manages the warehousing and distribution center.
- In the three years it has been operational, 79 permanent positions have been created.
- They have gained access to some institutional buyers, including local corporations and hospitals.
- They are pursuing a pilot entailing access to hospitals that require aggregated product.

LESSONS LEARNED

- Additional infrastructure is needed to complement the Redd. Building out a network of regional food systems infrastructure will be critical to supporting small- and mid-scale producers, especially those who want to access larger markets like institutions and wholesale purchasers.
- It has been valuable to leverage profit-driving endeavors like corporate events to fund social action efforts.
- The high-speed ramp-up has resulted in a need for catching up on managing inventory. Streamlining inventory and automating logistics and pallet management are key opportunities.
- It is essential to remain flexible and able to implement course corrections midstream as needed.



REGIONAL AGRICULTURAL CENTER (Southern Maryland)

BACKGROUND

The Regional Agricultural Center (RAC) is led by the Southern Maryland Agricultural Development Commission (SMADC), a non-profit organization dedicated to promoting southern Maryland agriculture. Currently in the early development stage but with many years of outreach and expertise informing the vision, the RAC effort aims to enable regional livestock farmers to gain access to the scale, support, and infrastructure needed to tap into the unmet demand for regional, sustainably raised meats and charcuterie. Specifically, SMADC's feasibility studies have found that in the Baltimore-Washington region, only 2 percent of the roughly \$26 billion spent on food each year comes from the region's farms, despite a reportedly growing interest in regionally sourced foods.

As with many regional agricultural communities, key challenges exist in establishing a reliable supply chain from farm to distributors, and then to home kitchens and restaurant tables. Neither regional farmers nor metropolitan buyers find it feasible to travel long distances to source the small volumes of goods that can be obtained from regional farmers. Further, in order to increase scale, regional producers need access to ancillary infrastructure like industrial freezer space, commercial kitchens, brand management capabilities, and aggregation and distribution management. The RAC aims to meet these needs, taking the burden off of buyers and sellers by providing infrastructure to make distribution feasible at scale. SMADC's Southern Maryland Meats (SMM) initiative has already demonstrated the effectiveness

You can make the greatest product in the world, but unless you can get it to your customers, it's not going to do you any good.

– **Craig Sewell**, Southern Maryland Meats
Marketing and Livestock Specialist

of some of these strategies, with nearly 50 producers committing to meet the standards established by SMADC and being co-branded and marketed under the SSM brand and a local farm label, thus centralizing these costs.

SMADC will put up a \$1 million grant to offset costs for the county that buys or builds the center, which is expected to be a 7,000-square-foot facility on a property of no less than 5 acres. An additional \$800,000 will be provided as a low-interest loan to the private organization that leases the space from the county and runs the center. The initial focus of the center will be cut-and-wrap, cold storage, and value-added, such as smoking and charcuterie. Additional goals include aggregation and distribution services, local point of sale, rental equipment, providing commercial kitchens to enable those with cottage licenses to grow, and education and other business for local farmers. The timeline for these long-term efforts is estimated at 5-10 years, with the shorter-term goals to be reached within 2 years. The endeavor is expected to create 20-30 jobs, not including the jobs that would be

created by the commercial kitchen and other efforts planned for later phases. Outside of the physical capabilities, SMADC hopes that the RAC will eventually provide the technological capabilities needed to overcome key challenges with supply and demand, pricing, and synthesizing data collected from transactions. These capabilities would enable southern Maryland farmers to overcome barriers like aggregating supply from multiple businesses to meet demand.

Job creation resulting from the RAC is slated to include positions such as meat cutters, packers, sales representatives, truck drivers, and inventory managers. It will further economic development beyond job creation, as it will also promote niche and cottage industry markets, providing an avenue for larger distribution to those who don't have the volume to sell to larger institutions.

The plan for the RAC will leverage the commercial, USDA-certified slaughter facility currently under construction by the local Amish community. The slaughter facility has a goal of processing 30-40 hogs and 15-18 cows each day, operating six days a week. SMADC Director Shelby Watson-Hampton shared:

SMADC is eager to get the RAC built and operational, so that it can begin to provide complementary services to southern Maryland livestock farmers that will enhance their businesses and establish a regional (and potentially national) Southern Maryland Meats brand that will benefit the entire southern Maryland agricultural economy.

The economic model for small-to mid-scale agricultural producers (AOTM) being targeted through the RAC will stimulate positive supply chain economics through distribution, joint marketing, and co-branding. SMADC anticipates the RAC being a small- and micro-business incubator, as well.

KEY ATTRIBUTES

- Though still in proposal phase, the RAC is expected to create 20-30 jobs, not including those to be created by the commercial kitchen and other efforts planned for later phases.
- The RAC will help reduce the difficulty of key challenges faced in the agricultural community, including reliable quality and quantity of supply and the need for enhanced connections among buyers and sellers.
- The RAC will build off of the local slaughter facility that will be operated by the Amish community, taking significant financial pressure off of SMADC. It will also provide freezer space, a gap that currently restricts local producers' profitability.

LESSONS LEARNED

- Significant unmet demand exists in the market, perpetuated by farmers' inability to meet wholesale quality and quantity requirements, a lack of processing facilities, and other supply chain issues.
- Including a slaughter facility proved to be too cost-intensive for counties to commit to developing, and the project vision gained the needed traction once that was removed from the RAC proposal.

AGRICULTURE AND FOOD TECHNOLOGY PARK

(Geneva, New York)

BACKGROUND

The Agriculture and Food Technology Park is funded by the city of Geneva, the county of Ontario, and the state of New York, with the goal of serving as a resource for entrepreneurs and raising the overall food manufacturing profile of the state. It is located on 73 acres of land in a 20,000-square-foot facility leased from the University of Cornell. Offerings include space and land available for lease, business development guidance, access to academic and research guidance, and infrastructure like commercially certified space and specialized equipment.

A 501(c)(3) organization, the park is referred to as a “technology farm” with the mission of serving as a financially self-sustaining entity that fosters the creation, retention, and expansion of agriculture, food, and biotechnology research enterprises for the benefit of both the state and local economies. It was started 12 years ago and serves as an incubator for those in the food, beverage, and agriculture sector, facilitated through partnership with the Cornell College of Agriculture and Life Science and the university’s Agricultural Experiment Station and research centers. Specifically, Cornell provides food research and development guidance, and the farm provides business and entrepreneurial development guidance to entrepreneurs based in New York state.

The farm’s hypothesis is that by raising the profile of local entrepreneurs, it will attract venture capital and other needed resources to the region. At a broad level, the project

“We’ve got to get some efficiency in this system. It’s not going to work otherwise.”

– **John Johnson**, Agriculture and Food Technology Park Executive Director

vision is to accelerate the food, beverage, and agriculture markets in New York by leveraging an abundance of resources, including substantial local farming, expertise from Cornell University, and access to a high volume of consumers. As John Johnson, executive director, said, “Stanford did a great job of encouraging economic development, which led to the success of Silicon Valley. Can we do the same thing in food?”

A key success of the farm’s model can be seen with the recent graduate, Cherribundi Juice, which was able to leverage Cornell’s expertise to identify specialized processing that could preserve the juice from sour cherries without destroying its beneficial properties. The company has grown from 1 employee to more than 50 over the course of eight years, with a current revenue exceeding \$20 million per year. The farm has nine companies on site and has reached capacity with what their current built space can hold. Next steps, if funding is obtained, will include building more manufacturing and lab space, potentially on the already leased acreage. Additionally, food companies can build out their own facilities on this space, subleasing it directly from the technology farm.

Beyond hosting businesses on site, the farm also provides outreach support to residents across the state who request guidance in areas related to the food, beverage, and agricultural space. Guidance ranges from business development planning to questions like where to go for label printing or the purchasing of specific supplies. Johnson reported that the two main issues he sees entrepreneurs facing are (1) being undercapitalized and (2) not having the expertise to build a business. The team at the technology farm is working toward helping entrepreneurs overcome these hurdles, providing guidance on available grants and the issues that arise during development of a business.

As a next phase, the farm is looking to work with Cornell's Center of Excellence to fund a large-scale data repository. This repository would contain information about food- and agriculture-related resources across the state, including local manufacturers and statewide grants, helping to create a user-friendly experience for entrepreneurs. This effort would feed into the farm's overall model of attracting entities like venture capitalists and budding entrepreneurs to the New York agricultural market, and, in turn, supporting the local and state economies.

KEY SUCCESSES

- A graduate of the program, Cherribundi Juice, grew from 1 employee to over 50 employees over the course of eight years, with a current revenue in excess of \$20 million per year and serving as one of the largest buyers of New York state sour cherries.
- The technology farm is at full capacity, with nine startup tenants onsite. Additional demand is prompting

exploration into expanding to enable a larger capacity. It also supports an average of 10-20 offsite organizations across the state that call on a regular basis requesting business development support.

- In partnership with Cornell's Center of Excellence, the farm's leadership is initiating a data repository effort to facilitate access to information for food, beverage, and agriculture entrepreneurs across the state.
- The partnership between Cornell University's research facilities and the farm is strong and growing.

LESSONS LEARNED

- Location selection was crucial to the technology farm's success. Proximity to and partnership with Cornell University provides a pool of entrepreneurs, as well as support regarding best practices in food, beverage, and agricultural pursuits. Additionally, proximity to a robust local agricultural scene, including wineries, dairies, and fruit and vegetable farms, has been an asset.
- Many entrepreneurs, while experts in their specific products, do not have a background in business development or insight into the value chain of product creation. Businesses at different stages of growth could find value in this organizational model.

WEST LOUISVILLE FOODPORT (West Louisville, Kentucky)

BACKGROUND

The West Louisville FoodPort intended to help revitalize the community by leveraging a 24-acre unutilized block with a 100,000-square-foot tobacco factory that was decommissioned and largely demolished. The effort was executed as a partnership between the mayor's office and the non-profit Seed Capital Kentucky. As part of the effort, the mayor approached allocating a long-unused \$7 million loan to support revitalization. The funding, which was from the Department of Housing and Urban Development, would have offset the significant environmental remediation costs anticipated to complete the estimated \$31 million project. By tapping into the \$290 million of unmet demand for local food, as identified in the 2012 Seed Capital Kentucky and Louisville Metro study, the plan was to reinvigorate this under-resourced community.²⁷

The food port would support local farmers, distributors, processors, and food-centric entrepreneurs while also providing food access to an underserved community. Additionally, a strong focus was placed on creating a community space with public-centric sites and programming. Resources were planned to include educational opportunities, gardening, kitchens, a visitor center, and other features to create a park-like experience that highlighted all aspects of the food process. Tenants were targeted to align with the food process value chain, including farming, value-added processing aggregation, consumption facilities such as retail and coffee shops, and innovative waste management like biodigestion. After the

initial investment to build out the facilities, it was expected that operation costs would be covered by tenant rent. The port was expected to create 150 temporary jobs and 200 permanent jobs when the site went live.

The project received significant support from the mayor and the West Louisville FoodPort Community Council, a group of community members volunteering to increase awareness and promote the project. However, this support was not able to overcome the community's negative perception of the project and the project team's outsider status. There was even some picketing of the site. This reaction was due, in large part, to a lack of community involvement while the concept was under development. Essentially, the entire project, including architectural plans, was presented as a complete package to the city, without community engagement. Some of this resistance can be attributed to concerns that economic growth would spur gentrification and negatively impact the communities that have long resided in that part of West Louisville.

Some resistance was also rooted in miscommunication and mistrust. For example, it was widely reported that Seed Capital Kentucky received the 24-acre site valued at \$1.6 million for the price of \$1. Though this was true, it was not widely known that the plot had been unutilized and required \$5 million in development before it could be used. Further, when the city offered Seed Capital Kentucky a \$7 million federal loan, the perception was that the money should have been available to community-

based businesses. Reasonably, it incensed the community and fostered a perception that an outsider organization was being provided an opportunity for success that local residents were not provided. What was not well communicated to stakeholders and the community was that the funds had come from a HUD loan and had not been used for many years, and when HUD put pressure on the city to use the funds, the city offered it to the food port as part of the revitalization effort. (Note: This research team was not able to determine if funds were first offered to locally owned businesses.) This issue, along with other miscommunications (for example, regarding a biodigester), led to a tipping point, from which the project leadership was not able to recover.

Seed Capital Kentucky canceled the project, citing “internal financial issues” resulting, in large part, from anchor tenant FarmedHere pulling out of the project. At the time of the cancellation, it was believed that Seed Capital Kentucky had invested more than \$3 million in the project.

KEY COMPONENTS

- The preliminary study identified \$290 million in unmet demand for local food.
- The port was expected to create 150 temporary jobs and 200 permanent jobs when the site went live. However, as of 2016, Seed Capital Kentucky decided to stop pursuing the project.
- The project was able to attract tenants largely because of the goal of having a highly public space that showcased all aspects of the food process: demonstration farm, value-added processing aggregation, consumption facilities, and waste management.
- Partnership with the mayor’s office provided strong advocacy for the project.



LESSONS LEARNED

- A sizeable number of public meetings and programs brought value, including the following: a meeting of 350+ community members to unveil the results of a demand study and related opportunities; conversations with potential project partners: farmers, food businesses, City of Louisville Metro, entrepreneurs, developers, and funders; group and individual meetings with these partners; participation in the Louisville Barn Raising with Leadership Louisville Center Bingham Fellows to validate the food port concept; and the presentation of West Louisville Food Hub plan to the U.S. Conference of Mayors' Food Policy Council.
- Ensuring the effort is collaborative, that residents are authentically involved in developing the vision, and that community has a true stake in the outcomes is of the highest importance. Achieving this requires ongoing relationship building beyond bringing stakeholders together in one location. An equitable, inclusive food systems approach is critical.
- It is worth strategically identifying one or more anchor tenants who are committed to and invested in the project goals, rather than one who seeks the more typical tenant / landlord relationship. Seed Capital Kentucky had small tenants who were invested in the mission of the hub, but they were not large enough alone to make the project financially viable.

Ensuring the effort is collaborative, that residents are authentically involved in developing the vision, and that community has a true stake in the outcomes is of the highest importance.





FINDINGS AND RECOMMENDATIONS

The substantial literature review and research into consumer trends, the study of other relevant projects nationally, plus extensive data from the online survey and in-depth interviews, all have informed the following 14 findings and 24 recommendations.

FINDING 1

Engagement across the supply chain is feasible and critical for food port success. At the same time, buyers need to be able to rely on a food port for consistency in product availability and quality, and an ordering experience like that of their other distributor relationships.

Food hubs are increasingly offering small farmers opportunities to engage with customers outside the direct-to-consumer market. By pooling farms' outputs and offering ancillary services, food hubs seek to overcome the barriers that often prevent individual local producers from accessing the broader wholesale market. Typical barriers include, for example, transportation costs and logistics, meeting state and federal food safety regulations, and the challenge of maintaining a consistent supply of key crops to satisfy the needs of wholesale buyers. Independently, food hubs often still face challenges with a high enough volume of supply. If networked with each other and with producer co-ops and more traditional regional distributors throughout the region into a food port model, there is opportunity to amplify their

“In some cases, growers are lacking the necessary infrastructure to work with institutional and wholesale buyers. The answer may not be for every jurisdiction to build its own aggregation, distribution, or processing infrastructure. Rather jurisdictions should collaborate and evaluate what is available jointly to meet regional demand and needs.”²⁶

– **What Our Region Grows:**
The Past, Present, and Future of Growing Food in and around Metropolitan Washington (2018 Preview)



successes, grow their product variety, and grow their customer base — alongside their capacity to support producers. One food hub, for example, cited that they sell direct to a university, and also that their product is on the trucks of the university's food service provider and, separately, on the trucks of the broadliner that sells to that food service provider. This type of multi-point engagement is essential to lower the barriers to high-volume accounts. Further, to get customer buy-in, a port must offer what customers expect from large distributors; yet a port would still need to offer something unique.

INTERVIEW HIGHLIGHTS

When we did a market assessment, we couldn't find what some buyer positions were even titled. If you go to a college, it's the dining services manager or something like that, but for a hospital, it's such a complex system between the group purchasing organization and the hospital administration, and the procurement person isn't the one making policy decisions. It's unlikely for growers to have the time to figure this out on their own, and they may have to go through a wholesaler to get into a hospital versus trying to go direct.

- **Amber Vallotton**, Fresh Produce Food Safety Coordinator, Virginia Cooperative Extension

It's an investment from an effort and resource side on the buyers anytime that a new relationship or a new distribution partner is brought into the mix. Those decisions are never made lightly if other options that are currently being used are filling the needs. The question is always, "What can I do to better offer my customers what they desire by working with the project?"

- **Chris Miller**, Director of Produce, MOM's Organic Market

What might work for a farmers market table display is unlikely to work in the wholesale market, for example, kale that has a couple of bug bites out of it even though the produce is perfectly good. There are two possibilities: One is that farmers are trained and given new outlets for that produce and understand what the requirements of a wholesale marketplace are, and the other is that we work to shift consumer perception as to what is an edible healthy, beautiful vegetable.

- **Caroline Selle**, Central Chesapeake Program Manager, Future Harvest CASA

Seafood is always a problem where our restaurant is in Virginia, and we'd love more flexibility with ordering. There just aren't the systems. I have to order it at 11:30 in the morning for delivery the following day. When I lived in Maryland, I could order it by midnight the night before and get it at 9 am the next day. It was so nice because at the end of the night, I could count that I sold 12 orders of fish and that I need to get five pounds for tomorrow. But now I kind of have to guess.

- **Matthew Adams**, Chef, Red Hen

Food safety is important to institutions, but there's a lot more — the quantity, the deliverability, the volume of the product, the quality of the product, the uniformity, and availability when needed. With tomatoes, for example, you may want to pick them when ripest. But now that you're wholesaling it, the wholesaler can't get them this ripe because they're going to rot within a day or two. So you will need to pick when less ripe.

- **Amber Vallotton**, Fresh Produce Food Safety Coordinator, Virginia Cooperative Extension

If all of the other distributors are giving restaurant customers until 11 o'clock the night before to place an order and we're calling for their order two or three days in advance, we're limiting our customer base. So we made a commitment to say, "We're going for this," and we have.

- **Mikey Azzara**, Founder and Owner, Zone 7 Food Hub

One of our goals is to encourage the use of local ingredients, specifically local produce. Virginia's farmers extend their seasons as much as they can; yet the wholesale market for packaged food has year-round demand. A problem our clients may encounter is sourcing a quality ingredient in a sufficient quantity at any given time. For example, there is variation in produce size and flavor due to rainfall amounts. Strawberries picked during low rain may be small yet flavorful, while post-rain strawberries may be large but bland. Each recipe that starts with a specific weight of berries must be adjusted to account for the variability of the ingredients.

- **Allie Hill**, Board President, Virginia Food Works

We developed our pricing scheme so the retailers' margin on our products is exactly what they expect from a branded product. Our pitch to the grocer is we make local as easy as possible. We bring them a portfolio of products that fits onto their shelf the right way. We understand how they like to work with vending partners and we are very good at fitting into their backend systems and bringing them the right promotional plan that they would be interested in. It's typically hard for them to do local because they have to do things differently from how their system is set up, and our goal is to eliminate all that friction ... and to make it possible to buy from us the same way.

- **Patrick Mateer**, Founder and CEO, Sealing the Seasons

I had on my board, an independent grocer who had a 35,000-square foot grocery store, and she would like nothing more than to buy locally grown produce during the growing season. She just didn't have the ability without going through a wholesaler, and so the farmer would have to take their product to the wholesaler. But then the wholesaler is dealing with the fact that he or she's got to make a choice that particular season: Do they continue to buy products coming out of California that are raised to sustain all kinds of abuse, have a long shelf life, and are coming in all year round? Or do they sacrifice that potential relationship to buy from a local farmer for three, four, six months in the hope that the California suppliers can supply them during the off-season, when Maryland is not producing the product? And I've sat with wholesalers that say, we're not going to make that choice because we're not going to run the risk.

- **Donald J. Darnall**, Executive Director, Maryland Food Center Authority

RECOMMENDATION: To reach institutions, large-scale grocers, and other high-volume wholesale purchasers, it is essential for a food port to engage as many wholesale market pathways as possible. This would include selling direct to the final wholesale buyer, as well as selling to those who serve as intermediaries, including broadliners, GPOs, food service providers, and other local and regional distributors. Further, a food port is most likely to succeed if it successfully integrates into existing ordering systems and meets larger industry expectations around product quality, packing, and delivery turnaround time. Increasingly, hubs and co-ops have this capacity.

RECOMMENDATION: Season extension can happen both on the farm and through regional north-south aggregation so as to improve the reliability of food hubs, co-ops, and other local distributors. Production planning with hubs and other distributors from New York through North Carolina can help account for seasonal weather change and promote more consistent supply across a longer growing period. Plus, it will reduce risk for purchasers when they commit to shifting some of their buying power from a national supply chain to one that is more regionally focused. Additionally, if the data aggregation, networking, and collaboration of the port model do successfully facilitate such production coordination, as planned, then increased profits could make it more feasible for farms to add season extension techniques, as well. Supporting season extension is a priority for consistency in supply and engaging more buyers.



FINDING 2

Developing a more coordinated distributor network, while also maintaining source identification of product, could help facilitate more favorable outcomes among entities that are typically competitors.

In the right ecosystem, hubs, co-ops, traditional local / regional distributors, and mid-size agribusinesses that self-distribute could be collaborators and strategically target larger accounts that otherwise are mostly supplied with product from outside the region. Distributors of different scale, structure, value proposition, and geographic representation expressed interest in such network development.

At the same time, despite the trend toward local and regional purchasing, it is not intrinsic to the value proposition of some companies to source from within specific geographic parameters, and many in the industry consider “local” to be a disruptor. Instead, locally or regionally produced foods might be purchased because they are

priced competitively in season while also offering the most fresh product. Regardless of motivation and objectives, large distributors have a big impact on the volume of regional procurement simply because of their scale, and approaching competitors as potential partners can advance each entity’s goals.

ONLINE SURVEY SNAPSHOT

When asked to describe their company’s sourcing practices generally, nearly half of the surveyed distributors responded that they are currently sourcing “Most or all” from the Mid-Atlantic region. When they were asked to describe it more concretely, four regional distributors, eight food hubs, one broker, and one co-manufacturer / co-packer of the 25 total distributors surveyed said they are sourcing 66 percent or more of their products from the Mid-Atlantic.

ANALYSIS: This points to a substantial regional investment not only among food hubs, but also among other large actors in the region’s supply chain.

“The Taproot Cooperative grew out of three food hubs that all had existing infrastructure. The hubs had local brands already established, and we saw an opportunity to brand them together, bundling them into a new look and a new entity. Taproot has much infrastructure behind it, but is taking advantage of new market opportunities through this branding process.”

– **Dan Hobbs**, Lead Co-op Development Specialist of the Rocky Mountain Farmers Union

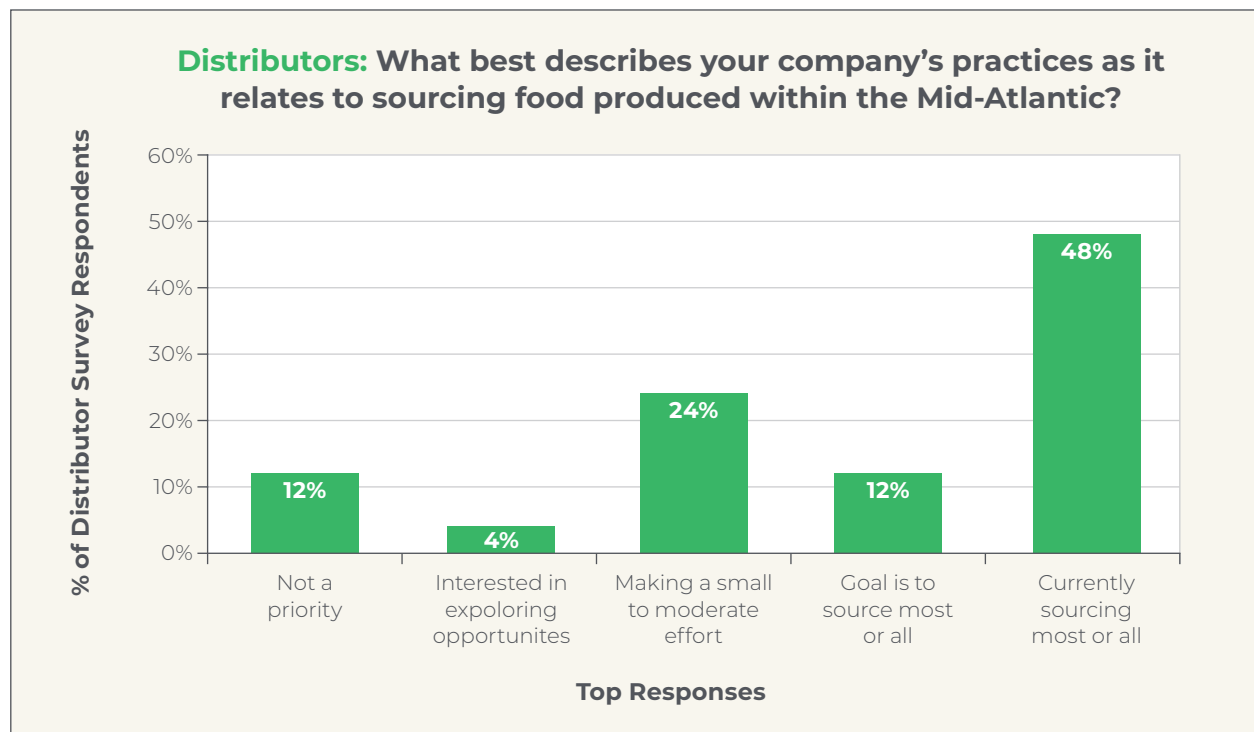
ONLINE SURVEY SNAPSHOT

Of the 21 (of 25 total surveyed) distributors who are distributing at least 66 percent of their products within the Mid-Atlantic region, one said sourcing from the region is not a priority, six said that they are currently making a small to moderate effort to source from within the region, and 11 said they are currently sourcing most or all from within the region.

ANALYSIS: Of the six who said they are making a small to moderate effort (yet distributing more than 66 percent), the effort is likely initiated because the demand exists and the pricing works in season. This could grow as consumer demand continues to grow, and it represents an opportunity to engage regional distributors more deeply on regional procurement whether directly through producers or through linkages with food hubs and co-ops.

“I love the idea of source-identified local food, but where do we want it to keep its identity, and at what point are we willing to lose its identity to a more homogeneous presentation to the buyer?”

– Patti Miller, Food Systems Consultant,
Grow with the Flow Consulting



INTERVIEW HIGHLIGHTS

We have embedded relationships that are going to be turned upside down if we really promote this kind of a local, regional supply chain, and have the farmers working more closely together as a group, rather than all of them trying to survive on their own. A number of them are already going into food hubs and saying, “Wow, this is great... The food hub is aggregating our product, getting it into the marketplace, and there’s a lot of transparency.” That transparency is giving them additional comfort that they’re getting real return on their product. This comfort and the expansion of these relationships could expand with a food port model as you’re describing it.

– **Distributor who declined to be identified**

I know that building a relationship with [a large, high-end grocery chain] requires getting through gatekeepers, but I don’t necessarily know or have access to them, and it will likely require months. When I worked in beverages, it would take six to 12 months for us to get something on the shelf. It’s not easy. You have to go through several rounds with trade shows and conferences — a lot of time and energy. If you can help me shortcut that, then yes, I’d be willing to be a little more flexible on price and, when I worked in seafood, for example, I would potentially have even worked with competing companies to fulfill that order. A platform would need to give companies more business than they could otherwise reach on their own.

– **Crystal Cun**, Brand Manager, Fleisher’s Craft Butchery

The CEO of MOM’s Organic Market said to me that he would like to buy blueberries out of Maryland and said that if I could help put together something, he would commit to buying them. If I had a network right now, I would go the network and I would say, “We have an opportunity ... MOM’s has an organic focus, and some of the farms aren’t organic, so we may need to get them in the process of becoming organic, but let’s develop a three-year plan and get them there, and let’s get price points now and let’s get contracts.” If we had a network to work with, we’d be doing that right now. But I don’t, and my staffing model doesn’t support such a big project.

– **Tracy Ward**, Executive Director, Chesapeake Harvest

We should have one central way to sell, or we should be selling their product, and they should be selling our product, and we should have the same trucks and we could even have the same account. It does seem like the field is ripe for partnership and innovation right now.

– **Ryan Ford**, Owner, Seven Hills Food Company

Farmers don’t care about borders except to the degree that regulation interferes with interstate commerce. Another challenge [with a regional aggregation and distribution model] is how does each state and business within the region care to present itself? Traceability is so very important. I love the idea of source-identified local food, but where do we want it to keep its identity, and at what point are we willing to lose its identity to a more homogeneous presentation to the buyer?

– **Patti Miller**, Food Systems Consultant, Grow with the Flow Consulting

Coastal Sunbelt supports infrastructure and logistics for the local food movement as a whole in the region because our fleet of trucks and state-of-the-art warehouse help break down barriers for producers of all scales. We are only one company, though, so partnering is key, but difficult, including business to business or non-profit to business — how we work together instead of competing against each other. For example, I talked with Appalachian Sustainable Development recently, and they are concentrating on rural West Virginia. Our trucks just don't go out there. For a startup farmer who wants to break into a company like Coastal, if they're asking to sell us two or three cases a week, it's not economically feasible for them to be driving in all the way to drop off for us, or for our trucks to be going that far off route. That's part of where expanded partnerships come in.

- **Katie Farnoly**, Local Farm Coordinator and Produce Buyer, Coastal Sunbelt Produce

What we do at the cooperative level, where we work with each grower and try to manage their production, I can see this system applying to something more regional. Working with each larger farm, or each cooperative, or each food hub to manage their larger production within the region together. And then if it's sold out of the food port, the larger buyers go through this consolidated network to get what they need. The network has all of its spokes that bring the product in.

- **Emily Best**, former General Manager, Tuscarora Organic Growers Co-op

Our county has Virginia's original beer trail, the Brew Ridge Trail. All the producers along Route 151 work together. We get a lot of attention because our producers work together and truly believe that the tide raises all boats. They don't talk about it, they do it.

- **Maureen Kelley**, Director, Nelson County (Virginia) Economic Development Office

There's this delicate balance between being centralized enough to be advantageous so that everybody's able to maximize the benefit of the work that they're doing, and the centralization that ends up sort of overtaking, in the network, a node's ability to express itself and its individuality.

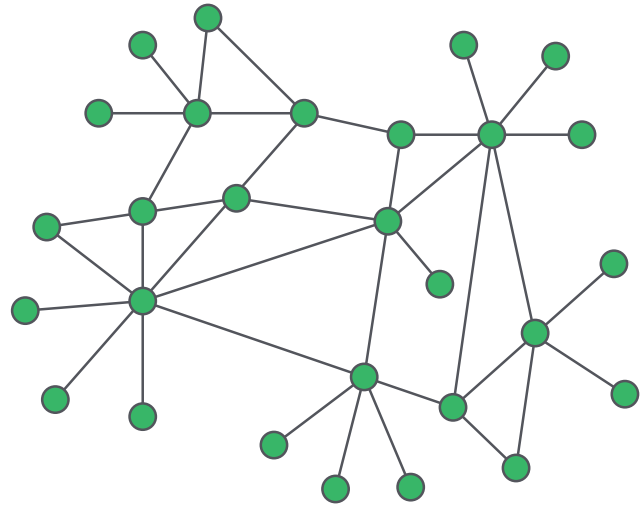
- **Laurie Wayne**, U.S. Coordinator, Open Food Network

RECOMMENDATION: Stakeholders throughout the region should explore new partnerships to move the needle on locally and regionally produced foods. Access to the technological backbone of a food port could provide this impetus and also serve as a vehicle for these partnerships to execute sales. Yet since some of these collaborations would be among businesses and entities that are not traditional partners (e.g., distribution competitors), partnership development needs to happen in tandem with regional value coordination that is facilitated by trusted individuals who have diverse relationships, including with producers of different scales and production methods.

RECOMMENDATION: Source identification of product beyond “Mid-Atlantic produced” is a must. Network coordination will give purchasers clear options that fit their priorities, whether it’s hyperlocal from within the county, processed within the state, or it is a 250-mile definition of local that needs to be met for their internal metrics and evaluation.

RECOMMENDATION: A hybrid decentralized-distributed network (with nodes that might connect in only one place) is the strongest fit to fulfill the region’s needs, as opposed to the more typical supply chain hub-and-spoke model, in which all branches lead directly to and from a central nexus.

With such a network, there is no central nexus, instead favoring several regional networks. With a network as large as the entirety of the Mid-Atlantic, these sub-regions will be essential for developing trust and relationships. The different nodes throughout the network could be, for example, regional distributors, food hubs, co-ops, processors (both animal and crop), co-manufacturing, co-packing, cold storage, aggregation / warehousing, milling, and



transportation. Such nodes can efficiently interact directly when decentralized, for example, enabling cross-docking to proliferate as needed. Additionally, users of a hybrid decentralized-distributed network would have more privacy and autonomy than with a centralized network. Data would be uploaded to a food port technology platform as necessary by platform participants so as to fulfill their end of a transaction. This is consistent with the culture of independence that is true to the agriculture sector while also allowing for the collaboration and transparency that enable growth.



FINDING 3

A Mid-Atlantic regional food port that is anchored by a strong technological backbone can support profitability across the supply chain by building off of existing assets and boosting logistical and other efficiencies.

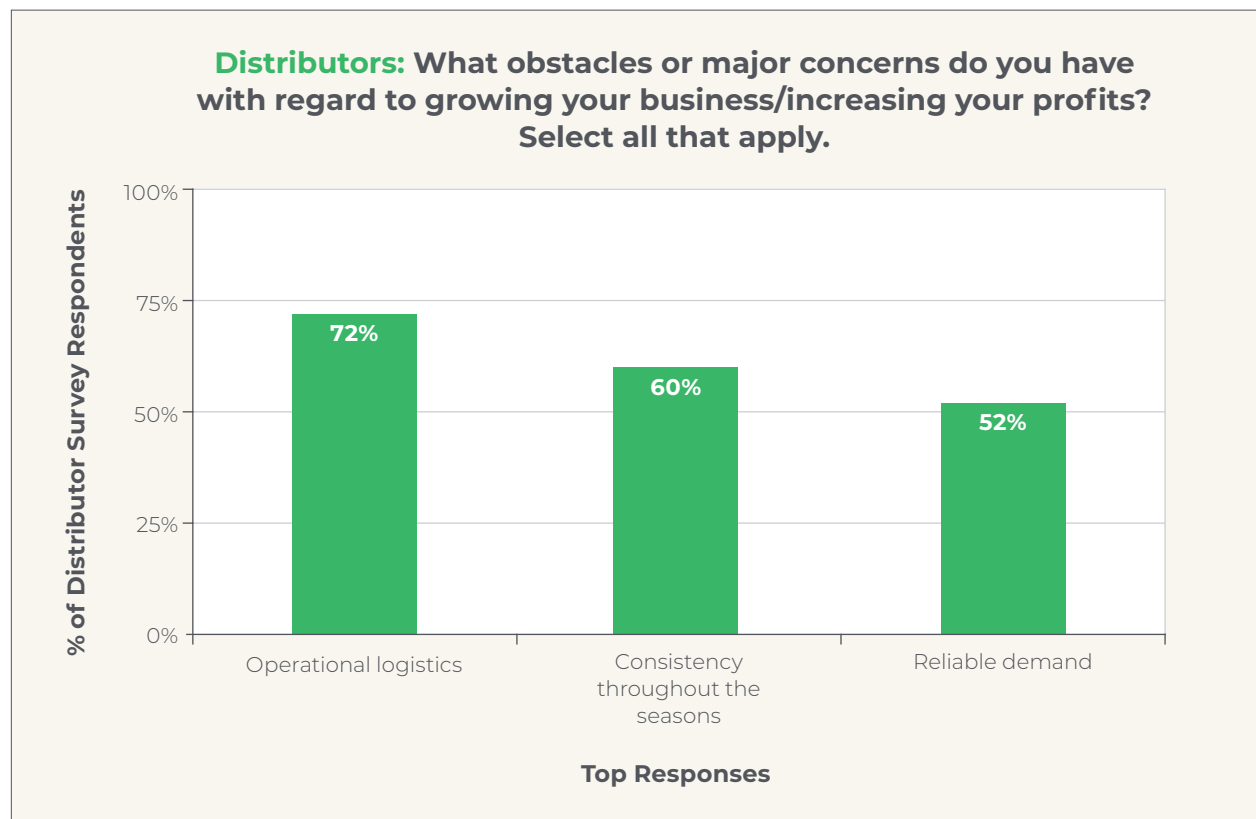
Technology can increase reliance on existing assets and partnerships, ultimately helping to build their capacity and distribute economic development throughout the region. This can also have the effect of minimizing the need for some additional physical infrastructure.

See Appendix F for a list of existing technological resources that potentially could be incorporated into a port platform through an application program interface (API). Some

“We’re very very conscious of efficiencies, fuel efficiencies, time efficiency, because the bottom line in farming is that you will run out of time before you’ll run out of anything else.”

– **Rick Hood**, Owner,
Summer Creek Farm

of the region’s physical infrastructure that is in development is listed in Appendix D, as learned in large part via online survey and research interviews.



ONLINE SURVEY SNAPSHOT

As seen in the previous graph (page 48), 72 percent of distributors who completed the online survey see operations logistics as a major barrier or obstacle to growing their business. Additionally, of the 18 (out of 25) who identified this as their top obstacle, 16 also said that logistics management would help improve their bottom line. Fifteen state the same about inventory management. Further, every respondent indicated that they thought improved technology could help their profitability.

ANALYSIS: This indicates that the stakeholders see technology as particularly important for addressing the pervasive issues of logistics and inventory management.

INTERVIEW HIGHLIGHTS

Our routes are based on where our customers are. We backhaul from local farms when we can, and we have to evaluate the situation as a whole when deciding where to go if it is very remote and off route. What kind of product are they bringing to the table? Is it something we already carry from a local vendor? Is it a niche market specialty? Is there a restaurant that wants to partner with them and commit to a certain volume? All those things help to mitigate the economic risk of sending a truck out to the middle of nowhere. If we see potential for growth in ramping up cases, we may just eat that economic cost up on the front end.

- **Katie Farnoly**, Local Farm Coordinator and Produce Buyer, Coastal Sunbelt Produce

We're very fortunate that we have the number one and number two volume producers of beer and cider in the Commonwealth, and the nut we've had to crack over and over again is time and distance to markets. It's just about your location. It's real estate.

- **Maureen Kelley**, Director, Nelson County (Virginia) Economic Development Office

We do a little bit of self distribution among our 19 stores to make it more feasible to work with small producers. With our resources, it is challenging to purchase from small to mid-sized producers, and so, just from an ability to eat, sleep, and live, it's not always possible for us to partner with small-scale producers. Every interaction takes time and there needs to be efficiency, as well, as a part of that partnership. A lot of our regional items we end up having to have one-off, direct relationships with, and anytime we have those, especially if it's a specialty item, it starts to get to the point where we're spending more time purchasing than selling. That's not a great place to be in, and so I think that consolidating that type of supply chain is an opportunity.

- **Chris Miller**, Director of Produce, MOM's Organic Market

There are entities that exist that are worth paying attention to and worth doing some research into before creating something brand new, so that we're not building something that is not needed or creating something that's not going to be successful.

- **Kristen Markley**, Mid-Atlantic Regional Coordinator, Health Care Without Harm

Starting from scratch is not always best. Instead of building a new operation, supporting an existing shared-use kitchen or processing facility may be preferred. Benefits include starting immediately and benefitting from existing equipment and services. Additionally, there is reduced competition, as we are all supporting the same mission. Partnering with existing kitchens to make them more successful is often the better way to go.

– **Allie Hill**, Board President,
Virginia Food Works

RECOMMENDATION: A more in-depth audit of the region’s processing and other infrastructure capabilities (beyond the scope of this study) could help point to asset-rich parts of the region that might not be broadly recognized as such, as well as areas in which there are particularly sizeable infrastructure gaps and opportunities. Early indicators point to the need for processing and warehousing in Virginia, with satellite warehousing and cross-docking also requisite throughout the region. Depending on the part of the region, ownership of satellites could look very different, including being independently owned, public-private partnerships, co-ops, and more. Value chain coordination could facilitate conversations among the possible distributors and other partners, helping to leverage successes and reduce duplication. Asset mapping also could illustrate how food already flows among producers, processors, and distributors, elucidating potential linkages that could become market channels.



FINDING 4

All partnerships and technological infrastructure that are incorporated into a food port concept must be grounded in trust and transparency. There already is significant partnership development across the region, and further relationship building is crucial to incorporate into port structure and operations from its inception.

INTERVIEW HIGHLIGHTS

I think locally grown, for the most part, refers to the region for most people. We work with surrounding states often. So I think when you talk in Delaware about locally grown, for most people they're thinking of the region, and not just did this come from Delaware. That being said, facilitating the coordination of multi-state interests sometimes is challenging. Each state is different, and their needs are distinct ... What we have here on the Delmarva Peninsula works because of the mutual benefits. For a food port to get state buy-in, I think the incentives would need to be clear.

- **Carrie Murphy**, Extension Educator, University of Delaware Cooperative Extension

I think from a local food perspective, we all have to be hyper connected in order to grow that market share. And to have food hubs network with some autonomy, which is super critical, the tool has to be robust. You're essentially saying, "Hey guys. We have to come together and, yes, weirdly, our businesses are structured like competitors, but we actually have to be collaborators." This requires a lot of trust around pricing, around costs, around quality control. And that means everyone in the network has to have relationships with one another. The larger the group is the harder it is to have those strong relationships with one another ... I definitely think that there's something to be said for not getting too big in terms of number in the network of food hubs.

- **Cullen Naumoff**, Co-founder, Farm Fare

I've seen beginning farmers who are who very idealistic, and they think they know what they're going to do, and by five years they fall apart, go out of business. Did they really accomplish anything other than being able to say that they grew things? Does that really help the industry as a whole? Did they really help the agricultural community? I still definitely sense a division between the status quo farmers and then the new farmers. There hasn't been that common ground in the middle yet of, "How can we work together?"

- **Food systems practitioner who declined to be identified**

The only way that trust building is possible in a geographically diverse world is when technology supports it. Yet people need to know each other before the need arises for first transactions. Compatibility is always at the base of successful networking and collaboration. It can be operational compatibility: One person works one way, and another works in another way and they both get dug in there, rather than looking for a way to create what's acceptable to both of them. I believe that trust comes through working together, but, on the surface, if they speak the same language, they'll proceed more deeply into the conversation. Some type of shared value system needs to come out, whether it's an operational value system or a sustainability value system. When you're this far apart from each other, you sometimes just can't have in-person meetings. Trust building without the technology would take exponentially longer to do that.

– **Patti Miller**, Food Systems Consultant,
Grow with the Flow Consulting

RECOMMENDATION: Thorough engagement across the sector with stakeholders of varied priorities should be a critical early step in food port development. Reporting back to interested parties across the food system, inviting people into the development process, and continuing a high standard of transparency are all essential to a thriving culture.

RECOMMENDATION: Questions of technology ownership and how a data algorithm would be structured so as to not favor one party over another are two of many questions that a port leadership team should be prepared to address with transparency. Further, an open-source platform would help to mitigate some of these concerns.



FINDING 5

A food port could capitalize on opportunities to establish relationships with high-volume wholesale accounts that have purchasing restrictions, and then grow those relationships over time; consumer buy-in and education are key to that growth.

K-12 public schools have had particular success in sourcing more local food in recent years. The passage of the National School Lunch and Farm to School programs in 2010, and their coordination with federal child nutrition programs, provided the backbone for local foods to proliferate over the last eight years.¹³ Prior to the legislation in 2009, there were approximately 2,000 farm-to-school programs in 40 states; today 42 percent of all school districts representing every state and Washington, D.C. are involved with farm to school, reaching more than 42,500 schools and impacting more than 23.6 million children.¹³ In December 2018, the District of Columbia became the fifth school district in the nation, and the first on the East Coast, to adopt the Good Food Purchasing Program, “which sets procurement standards around five value areas: local economies, nutrition, a valued workforce, animal welfare, and environmental sustainability.”¹⁶ Nationally, public schools’ buying power is significant: They reported spending almost \$800 million a year on local foods.¹³

The relative success of public K-12 schools’ local purchasing has been difficult to replicate in other sectors because of the lack of parallel legislation mandating support for local food; yet there are concerted policy efforts, in addition to initiatives that have

“Our closest food hub is an amazing partner but even they say, “Yes, schools love us during the state Farm to School Week and National Farm to School Month, but then they drop us like a bad habit.”

– Anonymous purchaser

been spearheaded by the non-profit and business sectors.¹³ The farm-to-college marketplace, for example, is supported by a growing network of non-profit organizations but is dependent upon individual institutions to make the commitment and investment.¹³ The purchasing contacts at many colleges and universities can also make locally or regionally focused purchasing more difficult, although external food service providers, broadliners, and other large distributors are increasingly demonstrating interest in and commitment to meeting such client requests. The farm-to-hospital marketplace is the least mature, but is growing quickly, according to an assessment by the Federal Reserve Bank of St. Louis, in which various farm-to-institution marketplaces were compared.¹³ Many hospitals and health care systems face constraints similar to colleges and universities; however, there is a concerted effort to create culture change around food offerings and health care, in particular.

Selling to food service providers or large regional distributors directly could be a critical step in accessing more institutions, in particular K-12, which despite their successes still have tight regulations around price, number of vendors, and geographic preference. Data indicate incremental success once a relationship is established with a school district and other institutional purchasers, in particular when paired with consumer education. Additionally, even when an account does not grow, for some producers and distributors, the volume is high enough that even less frequent sales are considered a significant and worthwhile transaction.

INTERVIEW HIGHLIGHTS

For me, the underlying piece here is around education and sharing provenance. People feel disconnected from their food, and they learn very little about food.

- **Anthony Kingsley**, Local and Sustainable Product Lead, US Foods

In 2018, Virginia summer food service programs served over 3.8 million meals when school was out of session. We're really pushing summer food service programs as viable outlets for local food because summer feeding programs get slightly higher reimbursement rates for each meal and more products are available from farmers during peak growing season. This makes local food a little bit more feasible.

- **Trista Grigsby**, Farm to School Specialist, Virginia Department of Education's Office of School Nutrition Program

During the year, we're allowed to make periodic micro purchases, up to \$5,000, from different vendors. We just bought \$4,000 worth of organic chicken legs for Farm to School Week, not on a bid, direct from Shenandoah Valley Organics. We wanted to try them out, and it's cool for a one-time thing, but I can't keep buying it and keep it under \$5,000, or it's not really legitimate anymore. So you have to think about how to work something into the regular distribution. If we decide to move forward with that, then we would say to Merchants Grocery, who has our contract, that we'd like to add this to our bid, that when they're delivering in Harrisonburg, to backhaul from Shenandoah Valley Organics this many cases of frozen chicken legs.

- **Andrea Early**, Executive Director of School Nutrition, Harrisonburg City (Virginia) Public Schools

I would say that University of Virginia Dining and Aramark are in a particular position of strength. We have a strong interest in locally available foods from our students, faculty, and staff that matches the commitments from Aramark as a food service partner. These needs drive expansion of channels for locally produced and sourced foods.

- **Matthew Smythe**, Resident District Manager, Aramark

RECOMMENDATION: Incremental relationship building and consumer education are essential pieces of how to expand locally and regionally produced foods within large food service accounts. To be successful, a food port must keep the value and outcomes of regional purchasing front and center, including sharing with purchasers data regarding the positive impact of their purchasing decisions on community and economic development.

RECOMMENDATION: A food port might provide additional value to participants by serving as a conduit for sharing resources and best practices among participating distributors, in particular as it relates to consumer education. An assessment of interest in resource sharing was not included in this research but could be considered in the future.

FINDING 6

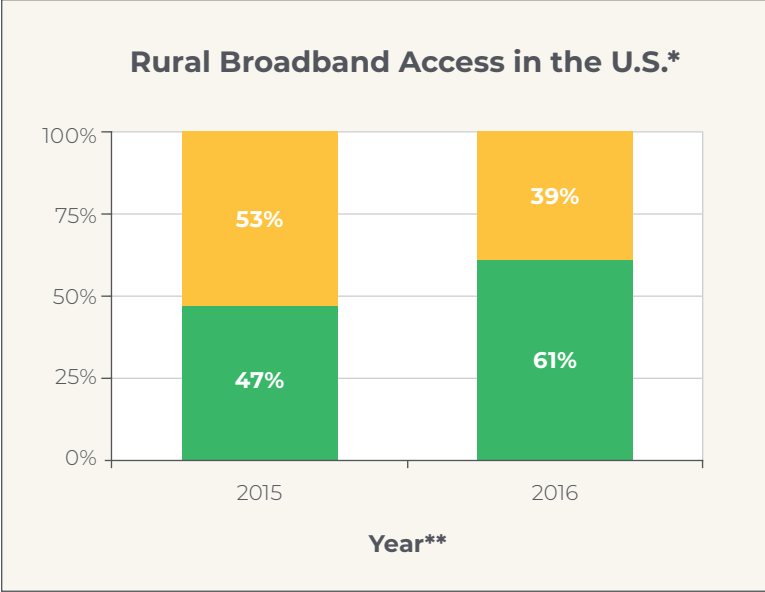
Across the supply chain, the interest in technology is high, as is the message that it must be “made easy” or “intuitive” for stakeholders to participate. It must add value, increase transparency and traceability, reduce time on sales and marketing, or help with inventory and ordering, as well as not add an unaffordable fee to each transaction.

A port would require those entities that could most benefit from it to be more closely connected to technology, in particular as it relates to real-time inventory updates. This will require an interface that is intuitive for processors, distributors, purchasers, and AOTM operators. There is openness to such technology, but there also is concern about reliability, time requirements, and technological capacity.

The capacity of farmers to connect digitally to hubs, co-ops, and other distributors is critical. The food port concept builds off of these entities and their relationships with producers, and live updates on their

producers' inventory is a requirement for products to be able to be listed as available on a port platform. This makes the technological part of the food port concept contingent on training and technical support, and likely financial investment, for an adequate number of producers to have this capacity. This is especially true if the system is going to support small- to mid-scale producers' desire to capture the true costs for their production methods. There will need to be a fair amount of information sharing around production and conservation methods, among other differentiators, all of which would be input into a port platform and available for buyers to see when making purchasing decisions.

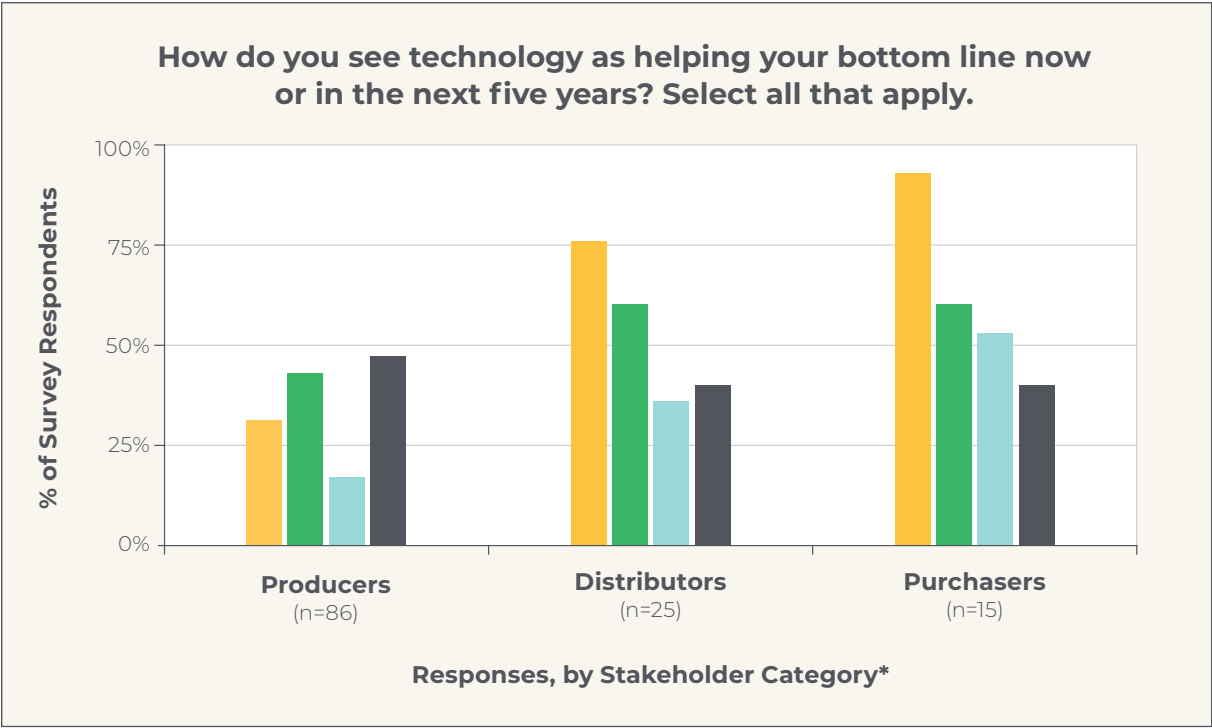
To achieve this extensively throughout the region, reliable fixed terrestrial broadband and mobile broadband service are key. From 2015 to 2016, rural broadband internet access increased from 47 to 61 percent nationally, indicating that the problem is improving over time but a significant portion of rural America is still without access.



- Lack broadband access
- Have broadband access

* The FCC has established a broadband speed benchmark of 25 Mbps download/3 Mbps upload.

** Sources: FCC 2016 Broadband Progress Report and FCC 2018 Broadband Deployment.



- Inventory management
- Administrative tasks (e.g, payroll, budgeting, staff scheduling)
- Price forecasting and determination
- Strengthening relationships with buyers/customers

* Processors were excluded from this chart because there were too few respondents for their responses to be meaningful as a group.

ONLINE SURVEY SNAPSHOT

Across the supply chain, there is high interest in growing technological capacities. For the 86 producers who responded to the online survey, 47.7 percent said they see technology as helping their bottom line in the next five years by strengthening relationships with customers; 43 percent said so for administrative tasks; 31.4 percent said for inventory management; and 17.4 percent said price forecasting and determination.

INTERVIEW HIGHLIGHTS

There has to be a push from all sides to get everyone to use one format, one umbrella site to find each other, because school nutrition directors are as busy as farmers and they have no time to search three different websites to find cherry tomatoes for next week. It's just not possible. So finding the farmers and then making those ordering procedures online if possible and as easy as possible for both, and then figuring out a distribution system that works — that is what schools need from a food port.

- **Trista Grigsby**, Farm to School Specialist, Virginia Department of Education's Office of School Nutrition Program

I think the biggest barrier might be cell phone service and being able to access cloud-based spreadsheets [for completing food safety paperwork], but if you were able to go on in offline mode and then the next time you're connected all that data uploads, I don't think that's a hard lift.

- **Gabrielle Rovegno**, Operations Manager, Montoya's Farm; Community Education Coordinator, Casey Trees

We're in an area that's never going to get fiber optics; we're all satellite broadband. As far as technology, that is an issue because almost all the software tools you use ... have become much more graphical, and it means more to download. If you don't have broadband, you're gonna get left behind. It's even to the point that [even with satellite] broadband, we've had people come take movies of the farm, little film clips for marketing, and they can't email them to me. They have to put them on a little stick and carry them to me because I can't download that much. So it affects something as stupid as marketing. More importantly, when I need the internet the most, to see storm patterns on radar, I can't rely on my connection since it gets knocked out during bad weather.

- **Rick Hood**, Owner, Summer Creek Farm

Buyers need to know availability. Sometimes, farmers are still working in that old school way where they send out an email, you email them a day later, and they're out of everything you just asked for. So I think having a better way of knowing what's actually available and what's in stock would be helpful. Live updates and transparency are the most important things I could think of for tech features.

- **Matt Baker**, Executive Chef and Owner, Gravitas

I don't know how to code, and I'm never going to. I don't need to know that in order to use this tech [blockchain], because we turned it into software as a service. It's effectively, no joke, as easy as gmail ... That being said, if you don't have a problem you're trying to solve for, it becomes very difficult to see the value proposition in investing in this specific

new technology. When deciding on the right tech, you've got to ask the question of what's the value add for me. It could be that a lot of your partners are in the ecosystem. There is a huge marketability to this, where we provide a system through which the consumer can know the name of the chicken that they're about to eat, or the exact geo-location of the tree that apple came from, and the chemical makeup of the soil that corn was grown in. So if that's important to you, your consumers, your suppliers, or retailers, this is the vehicle to provide that data.

- **Lou Izqueirido**, Global Sales Leader, IBM Food Trust

The main driver for open source [with Local Orbit's technology] was the fact that there's a lot of technical and product designer talent out there, and people that want to contribute to smart local food solutions. Right out of the gate, if all of these companies are building mediocre closed-source tools, we have wasted talent. Our biggest costs and biggest pain points are that there's so much work to be done to make the software serve people's needs, to make it more scalable ... If you have people that want to contribute to that, but can't, it's just a wasted opportunity.

- **Rob Barreca**, CEO, Local Orbit; Executive Director, Farm Link Hawai'i; Owner/Operator, Counter Culture Organic Farm

As long as farmers see the benefit to what they're doing, they're willing to adopt and embrace new technology.

- **Eric Bendfeldt**, Extension Specialist, Community Viability, Virginia Tech Extension

When there is something new that's presented to producers — a new idea, technology, or training, for example — as long as the benefit of working together and participating is presented up front, it's usually received well. You'll need to be sure that participating in the food port relieves some burden and makes things easier, not harder.

- **Carrie Murphy**, Extension Educator, University of Delaware Cooperative Extension

RECOMMENDATION: A platform should build off of already proven systems for logistics, inventory, and more, with the goal of increasing reliability and not duplicating efforts. An open-source API could be the most effective way to enable this, and further assessment is required. From there, technology development should be an iterative process that is directed by the user experience and continuously incorporates feedback and learning. (Appendix F lists some of the possibly relevant technology.)

RECOMMENDATION: The development of a port platform should be with the rural user in mind, specifically with regard to rural broadband access limitations. While the rural producer is ultimately the primary stakeholder, it might be the distributors (food hubs, co-ops, regional distributors, or broadliners) that are inputting data into the system. Regardless, however, the platform also needs to be optimized for the buyer experience, integrating as much as possible with their current systems.

FINDING 7

Almost universally, producers point to a willingness to produce more, in particular as the demand rises for local and regional foods. To achieve this, enhanced or additional training and technical assistance is needed by many. AOTM farms have more resources for FSMA compliance, while food safety is a particularly potent challenge for smaller scale farmers. Despite existing efforts to help producers meet these requirements, more and varied interventions are needed. Food hubs are the unsung heroes of supporting small producers, and a food port could help take some of the sales and marketing burden off of them while they help producers meet food safety requirements.

“I feel confident that [mid-scale farms] will play a critical role in the regional food system for us and for the customers because they bring stability to it. I think that the changing climate is proving to be very challenging for the smaller farms that started in the last 15 to 20 years.”

– **Mikey Azzara**, Founder and Owner, Zone 7 Food Hub

The importance of the mid-sized grower cannot be overstated with regard to meeting demand. Some that could be classified as AOTM already partner with food hubs and other distributors; others self-distribute. AOTM businesses help provide the food system with a consistent supply of product, as well as the potential for shared infrastructure for which smaller producers simply would not have the capacity. For example, mid-scale producers often own trucks and have drivers on staff, as well as a greater ability for logistics coordination. Additionally, supporting mid-scale growers means a higher acreage of agricultural land that stays in production.

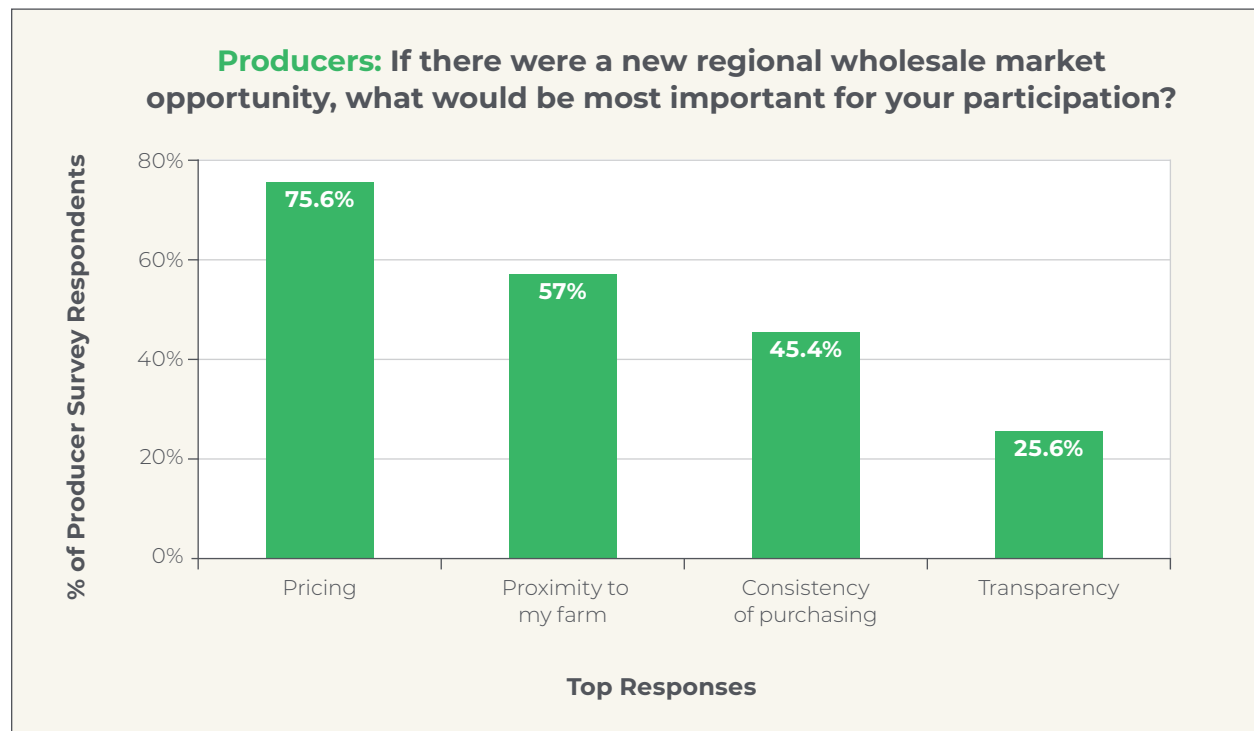
Mid-December 2018, Sysco informed its produce vendors of new safety standards (Harmonized GAP Plus) that were to go into effect January 1, 2019 and have serious implications for small- and mid-size producers and the distributors that buy from them. While Sysco is providing a grace period for compliance for any producers that were GAP audited before January 1, 2019, once those existing audits / certifications expire, all producers that sell “high-risk fresh produce” will need to become HGAP+ certified.

High-risk fresh produce includes: all berries, brassicas (such as broccoli and cauliflower), celery, cucumbers, cucurbit fruit (such as melons), culinary herbs, green onions, leafy greens, microgreens, mushrooms, peppers, summer squash, and tomatoes. This new, elevated standard points to the direction that the industry is moving: one uniform food safety audit by any credible third party — and also the likelihood that small producers and AOTM will be left behind without sufficient investment of resources.

For example, in the online survey, one AOTM producer of berries and vegetables cited that in order to best improve profitability, his priorities are to access more wholesale market channels and, specifically, to sell more within the region. The only obstacle he cited with meeting these goals is his need for more connections with purchasers. This is consistent with feedback gathered through the online survey: 45.4 percent of producers chose “consistency of purchasing” as one of the most important factors influencing their participation in a new regional wholesale marketplace. Further, as is the case of many AOTM businesses, this producer also self-distributes his products, and a food port could buoy his plans for expanding his network.

Traditional wholesale customers are much more likely to require farms to meet the regulations laid out in the Food Safety

Modernization Act (FSMA), and many local foods advocates claim that small farms do not have the capacity to meet FSMA requirements, or that the requirements exert an undue burden on small farms because the legislation was written with commodity agriculture in mind. However, when the Wallace Center at Winrock International surveyed 119 food hubs in 2017, they found that “most hubs with wholesale customers did not require Good Agricultural Practices (GAP) and Good Handling Practices (GHP) certifications from their suppliers”.⁹ At the same time, the Wallace Center’s data point to an increasing desire among food hubs to meet GAP and GHP certifications, with the proportion of surveyed hubs requiring them rising slightly from 2015, as well as the percentage of hubs with staff responsible for “internal food safety compliance” increasing from 49 in 2015 to 57 in 2017.⁹ Such staff



often are working closely with producers on compliance, and the need for their services will only increase as broadliners and other high-volume purchasers increase their safety requirements. It is the rare food hub that does not verify that their food safety standards are being implemented, although interviews for this research have pointed to at least one startup food hub that is not doing due diligence in this regard.

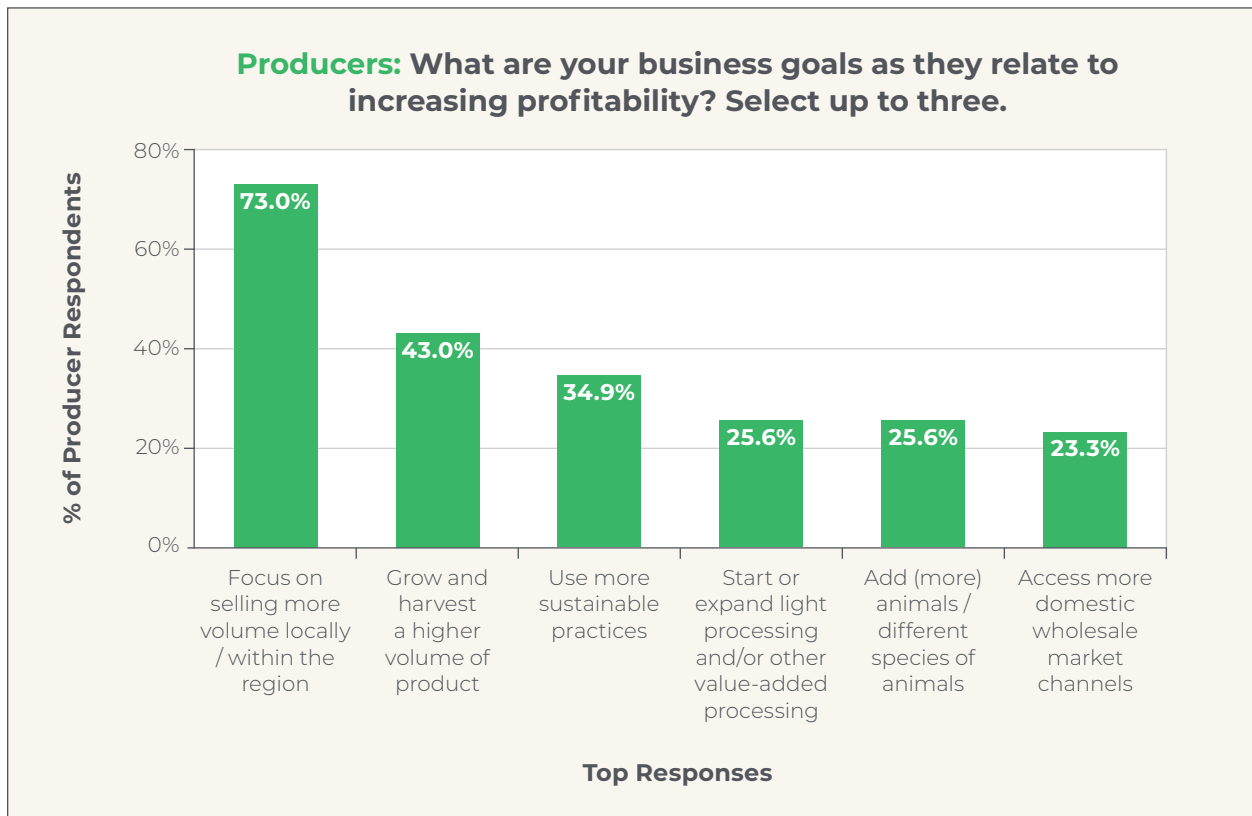
Additional training and technical assistance is crucial for many producers to take the next step in accessing wholesale markets. In particular, they might need support with business planning, buyer-seller matching, and food safety education and plan development. There is concern among interviewees that the future in wholesale for smaller scale

producers will only be in retail if increasingly stringent food safety certification requirements are not met.

ONLINE SURVEY SNAPSHOT

Of the 73 percent of producers (or 63 out of 86 total respondents) who said that a business goal is to focus on selling more volume locally or within the region, 27 percent also said one of their business goals is to grow and harvest a higher volume of product.

ANALYSIS: This points to the possibility of expanded production if demand is demonstrated and buyer-seller relationships are facilitated within the region.



INTERVIEW HIGHLIGHTS

We need a demand to depend upon so we can have a supply to develop. Some farmers need time to develop the supply, but they can do it. The farmers on the Eastern Shore can get there. It's just the reliable demand is what I'm missing.

– **Tracy Ward**, Executive Director,
Chesapeake Harvest

We have a list of farmers that would like to be producers of ours. And one of the biggest reasons for that is that we pay a fair trade living wage to all of our farmers ... Also being antibiotic free, it's actually an easier way of caring for the herd of cattle. It takes transition and time to be grassfed and to move away from pesticides and everything else, but in the long run, it's a lot easier.

– **Chris Horn**, Regional Sales Manager,
Trickling Springs Creamery

For me, one surprise in all of this has been connecting with more conventional farms that have been around for 100 years or more. We see tremendous value in those farms. When I started Zone 7, I came from an organic perspective and background, and the first 10 farms we worked with were mostly organic. It's been a journey to go from those 10 farms to realizing that in order to fill a large school order I'd clean out their supply of radishes, so I have to reach out to more large farms. Then one foot in front of the other, now those multi-generational farms also warm my heart, and I feel confident that they will play a critical role in the regional food system for us and for the customers

because they bring stability to it. I think that the changing climate is proving to be very challenging for the smaller farms that started in the last 15 to 20 years. Some of their resilience depends on whether or not they own the land they're growing on.

– **Mikey Azzara**, Founder and Owner,
Zone 7 Food Hub

We right now are part of a food hub aggregation program, and that's been great. I had tried to sell to a local grocer by myself before, and I compare it to worse than dating. They would say they'll buy product but then you're ghosted and thinking, "Why won't you return my calls? I ripped these turnips out of the ground for you!" Now we're working with this aggregator, and the grocer buys from us through them every single week. So if that's what it took to get our product to the grocer, then that's what it took. What I don't like, though, is that I haven't had to show the aggregator a single thing about how we do recalls, or any of our sanitizing procedures. I think that just hurts the industry in general. And I don't want to see more of these aggregators pop up at the expense of good food safety measures, especially when there are plenty of technical assistance grants out there that can help with this, spending individual time with one farm and going through the procedures and paperwork with them.

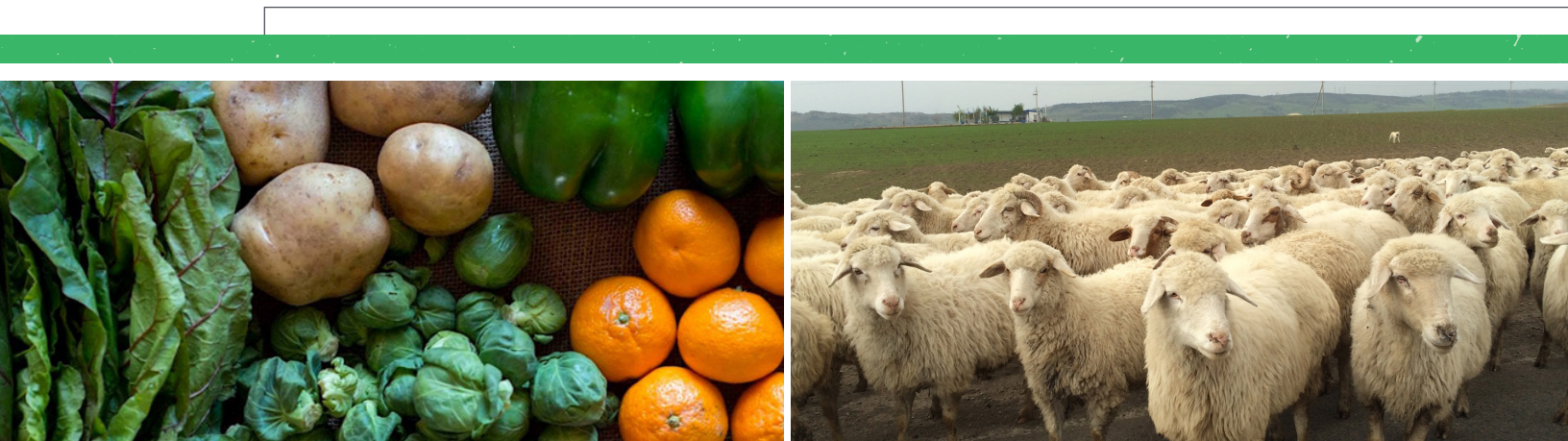
– **Producer who declined to be identified**

There are different tiers in terms of being in compliance [with FSMA]. The big farms need to be in compliance now, and USDA has aligned Harmonized GAP to be in compliance with the Produce Safety Rule, which was huge because the critique of the Produce Safety Rule was there's no certification. They don't get that piece of paper once inspected, and buyers need that assurance, that piece of paper. So GAP was not aligned, but now it is, and that gives buyers a little bit more comfort.

– **Food systems practitioner who declined to be identified**

RECOMMENDATION: If food hubs and co-ops, and regionally produced food more generally, are to break into the institutional market on a more meaningful scale, it will be necessary to continue to support pathways for small farmers to meet food safety requirements. A food port will need to invest its resources to ensure that all of the distributors in its network are upholding standards that meet wholesale expectations and regulations. Corporate sponsorship, grant funding, and public dollars will be needed to augment these expenses.

RECOMMENDATION: There are excellent print, digital, and instructional resources for producers to help them meet their goals of increased production, improved growing practices, readying to access wholesale markets, and more. Availability of resources in multiple languages and, specifically, for low-literate producers is a must, as described in the next finding, as is the training and technical assistance to individually support producers through this often-unfamiliar process. Guidance with food safety planning and certification is a very individualized process and difficult to scale, and so dedicated funding is a critical component. Further, as food port technology is developed, there should be within it the possibility of sharing food safety and other resources among participants so as to help advance the regional supply chain and broader food system.



FINDING 8

Looking at the supply chain through the lens of inclusive food systems is extremely relevant to meeting demand and supporting both smaller scale agribusiness and AOTM. An equity framework, when executed thoughtfully, should contribute to sector strength and lessen risk.

Racial and ethnic equity, among other values that promote economic inclusion, is critical to a thriving regional food system. Without an equity framework, the food system is missing tremendous opportunities to engage more producers, provide a more even playing field for people of color, keep more land in agriculture, reach new markets, and even have a greater variety of crops and value-added products to offer consumers. (Immigrants, for example, often grow familiar crops from their countries of origin in addition to the crops that are typical of the region.) Employing an equity-based approach to developing a food port would require flexibility and outside-the-box thinking for those whom are accustomed to operating within the established power structures.

INTERVIEW HIGHLIGHTS

It seems like there's been more and more interest by people in developing food hubs. One concern is that we're going to have an inundation of food hubs and not enough producers and product ... Aggregation is great depending on the markets and if food hubs can meet demand.

- **Amber Vallotton**, Fresh Produce Food Safety Coordinator, Virginia Cooperative Extension

“A great deal of any of our commitments to equity is having the right people not just at the table, but helping to lead the table.”

- **Celeste James**, Community Health Executive Director, Kaiser Permanente of the Mid-Atlantic States

Farming is not something that I ever envisioned myself doing or being passionate about, especially here in United States, but when I came here [from Zimbabwe], in missing the quality of food, the real taste of food, I'd always wish I could find a little piece of land to do that ... People have been supportive, and ... my wish now is if we could have more resources, either through the county or through the state, because as a beginning farmer there are so many challenges that you meet.

- **Tanya Spandhla**, Owner, Passion to Seed Gardening

For English-speaking farmers, if they want GAP certification and FSMA compliance, they can get it. There are tons of resources out there; I've gone through all the programs, and they're wonderful. For Spanish farmers, though, there has been a much slower adoption curve, especially because many are not literate. Food safety is a lot of things farmers are doing anyway, it's just that they haven't articulated it or put it down on paper ... My partner is an immigrant and not literate, and so I made everything into

a template that was purely visual, or where he just has to take a picture of the CoolBot, text me that picture, and then I just put it in our Excel sheet. That was a lot of legwork up front, but it's easy to use. Everybody has a smartphone at this point — especially, I have found, low-income farmers — because they don't have a computer. I think there's a lot of possibility to have standard templates that are low-literacy, mostly pictures, where someone just inserts the number or the picture that corresponds to what is being asked ... It seems really daunting at first, but when you break it down, it's not as overwhelming as it seems in some classes. They just want numbers on five or so things, and I just have to make it a habit to write them down. If there is that person or that workshop or that perspective given, it seems much more doable, in particular for immigrants.

- **Gabrielle Rovegno**, Operations Manager, Montoya's Farm; Community Education Coordinator, Casey Trees

Equity means asking, How can I increase whatever capacity you have to be able to also serve the needs that I have? ... I think where equity becomes really critical, or that lens on equity becomes critical, is in how inclusive you are in bringing in the *other* into your decision making structures, into your planning and design structures, into your plans for creation of opportunity. A great deal of any of our commitments to equity is having the right people not just at the table, but helping to lead the table and, bringing in thought leadership from across the different spectrums of the food chain, and valuing that input. And again, recognizing where

people need to be strengthened, so that they can be as valuable to you as possible, and not just leaving them behind because they're not there yet ... Putting in a little bit of extra work is what is required to be able to source from multiple places. So it might increase the number of relationships that you have to have, or the stops that you have to make, but you kind of have to do it to be inclusive.

- **Celeste James**, Community Health Executive Director, Kaiser Permanente of the Mid-Atlantic States

RECOMMENDATION: Equity needs to be built into food port development from the start with stakeholder involvement, operations planning, ownership structure, and the business model. Supplier diversity goals are one piece of how equity can be a long-term part of the business plan, not only a box that gets marked off. Working with distributors that value diversity in their supply chain is another strategy that makes sense on a foundational level, as does diversity embedded within a port's leadership / advisory structure. Training and technical assistance available in different languages and for different literacy levels is key, as described in the previous finding.

FINDING 9

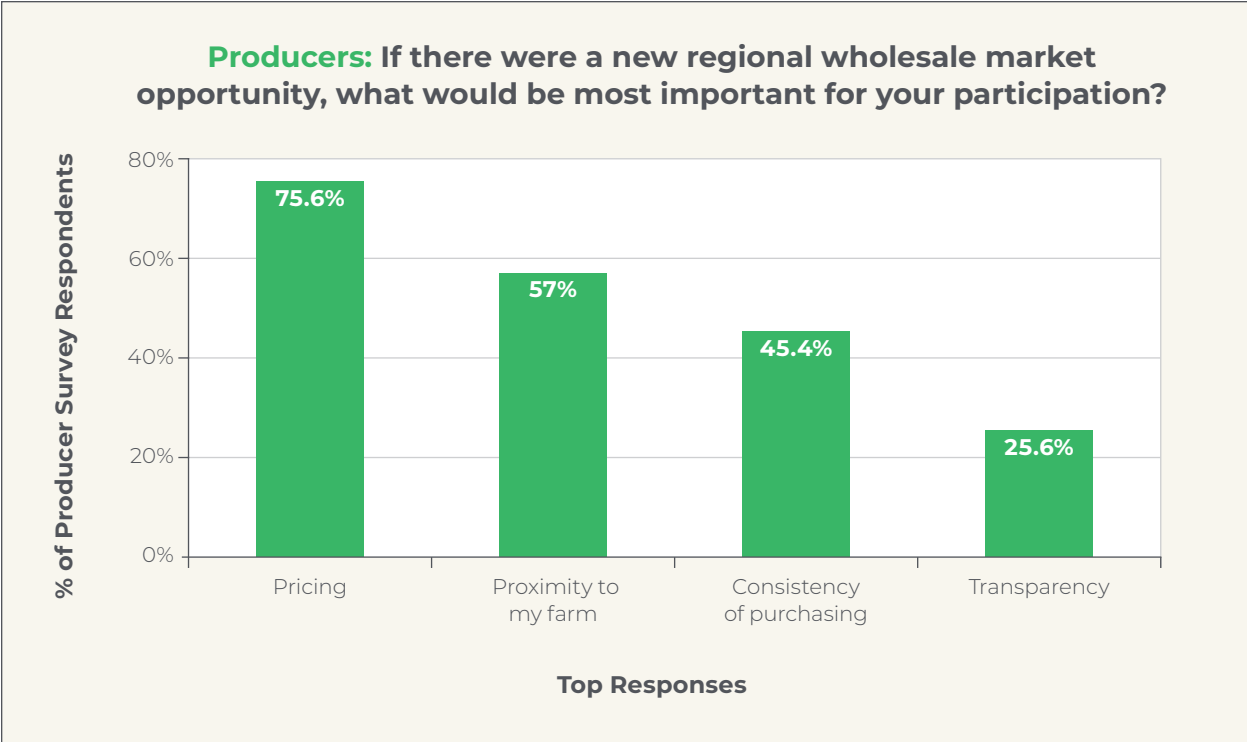
Price is a critical factor in terms of producer participation. It also lends itself to concerns of a port as an online environment in which growers can undercut each other. This is particularly important since food port viability is only as great as the volume of high-quality product it can offer the wholesale market.

INTERVIEW HIGHLIGHTS

There's always going to be the price barrier. Right now it is more expensive to produce the way we produce, but the value is in the product because of its quality. Besides, food should be viewed like any other premium product you buy. People don't complain about paying more for a better car; we need

to realize that food should not be a product where we are always chasing the cheapest price. If the product is of better quality, then we as a society need to recognize that value especially when considering it is the most important thing we spend our money on. The food we purchase and consume has a direct impact on our health and well-being, so we believe a mind-set shift is needed so that everyone places more value on the food they purchase. We continue to see the negative results from always chasing the cheapest food.

- **Ryan Pierce**, Founder,
Fresh Impact Farms



If you're looking at aggregation from smaller farms, there is the price points issue. There is an education aspect of it, especially if a farmer is used to selling at retail prices. If you encourage them to move to wholesale and say, "Okay, if you go wholesale, we want larger quantities, and you can expand your production," they're not always quite ready to make that jump, and some rather maintain their retail prices.

– **Food systems practitioner who declined to be identified**

Our farm has always been run as a business and we were successful early on with farmers markets and some very local wholesale. But we came to realize that direct to retail was consuming way too much of our time and required more labor and personal time and wasn't worth the reward for the price range. We've evolved from a small farm that did everything small farms do to being a wholesaler. We constantly looked at the amount of effort we were putting into the farm, versus the amount of income. Actually our farm is all about 95 percent wholesale now.

– **Rick Hood**, Owner,
Summer Creek Farm

The real winner in price is going to be regional production planning ... Once we can help farmers plan efficiently, I think they'll be able to gain better efficiency and have confidence that it's all going to sell, and so then we'll see better local food price efficiency across the region.

– **Cullen Naumoff**, Co-founder,
Farm Fare

One of my hopes is that the bigger players wouldn't compete unfairly with the smaller ones. I think there are certain practices people should follow. We had something happen out here, where a non-profit distributor had aggregated eggs, and the buyer didn't buy, and so they flooded the market with eggs and nearly killed its competitors.

– **Patti Miller**, Food Systems Consultant,
Grow With the Flow Consulting

In our Ohio pilot, one food hub was listing [commodity] products grown on Amish farms as really low, and others pointed out that they were losing customers to that hub because of the price difference. Those aren't super fun conversations to have among collaborating hubs, but in the end, everyone decided together that when two hubs are selling similar products at dramatically different price points, the Farm Fare software will need to flag it. This notification isn't so much automation as it is a trigger for the food hubs to communicate with one another and to come together on a fair resolution regarding supply and price. These idiosyncrasies will be further resolved when regional production planning is leveraged to optimize supply and demand across a region.

– **Cullen Naumoff**, Co-founder,
Farm Fare

RECOMMENDATION: While price is critical to producers, it is only one piece of profitability; outreach across the supply chain needs to emphasize that a food port model can enhance profitability through network and relationship development, enhanced processing infrastructure, economies of scale, and data-informed production planning.

FINDING 10

The networking developed and the data collected through this technological network could be transformative in terms of waste management, integrated production planning, and environmental resilience, all of which present opportunities for agribusinesses to plan prudently for long-term viability and growth. Such network development also could serve as a resource for food banks, which are experiencing a greater need to leverage the market to meet their growing demand for fresh foods.

These features of the port concept also represent a marketing opportunity, as waste reduction, food access, and resilience are more and more important values to purchasers and the consumers they serve. Consumers are increasingly knowledgeable and some want to deeply understand the food system in which they are participating through their purchasing decisions.

Further, production planning, and, potentially, contracts could help address a major sticking point that remains across the supply chain: “Who is left holding the bag when deals fall through?” While many buyers are genuinely committed to the producers from which they purchase, extreme price sensitivity is nonetheless a theme shared by hubs, co-ops, and producers. Agreements made in good faith are violated when a buyer finds a better price elsewhere — even when there is not a quality issue and price was agreed upon.

The technological backbone of a food port could minimize the frequency of deals falling through. Yet on the occasion that

such situations do occur, or there are large quantities of seconds and thirds, the platform could help direct those items for purchase at market price by other buyers in the network, or, at a lesser price, to food banks or a processing facility that is part of the network. This could help with market stabilization.

SOIL MAPPING offers a unique opportunity to prepare for a resilient response to climate change and other environmental crises. One distributor networking platform, Farm Fare, embeds soil mapping within its software, thereby helping producers and distributors understand more about optimal conditions for production. Having access to this type of data can help producers and distributors understand what might grow better in changing conditions, and an expanded producer-processor-distributor network could also help ensure that demand is met from within the region in cases of partial or total crop failure.

RECOMMENDATION: Matching soil types for demand planning on a regional level will elevate the efficiency of small and AOTM farms, because such producers will be able to plan for the most efficient crops for their soil mix. A food port that includes data about soil types and includes historic production data can help growers plan for and respond to changing climate — and potentially even help mitigate some of their vulnerability. Reliance on technology will increase over time; yet, Extension support and peer-to-peer training through organizations like Future Harvest — Chesapeake Alliance for Sustainable Agriculture are also critical.



INTERVIEW HIGHLIGHTS

There's definitely value on the excess side of things for us, in particular, as somebody that carries inventory. Sometimes I have a couple of pallets of something I'd like to just move at a great price to another large customer, rather than either having the product take up too much space or shrinking it.

– **Mikey Azzara**, Founder and Owner,
Zone 7 Food Hub

This year was a 100 percent unprecedented poor harvest. Over the past five months, I would say we're down at least half a million dollars in capable production. And I'm not even looking at the September numbers for tomatoes, squash, and broccoli. We'll definitely see low numbers on all of those things. For the first five months of the year already it's half a million we're down, and we don't even know what's going to be harvested yet for the fall with root crops. I'm hearing poor results from the field because they've gotten so wet and they're not growing, or they're just rotting in the field. All of the growers have said that it is by far the worst season they've had, and some of them have been doing this for 30-40 years.

– **Emily Best**, former General Manager,
Tuscarora Organic Growers Co-op

I was shocked when I found out from our sweet potato grower on the shore, that when they can't find a market for their sweet potatoes they end up dumping them in the woods. That's where I could see a hub being helpful. Help these growers find markets before they plant, so they know where it's going, it's more efficient, and there's less waste — and less heartbreak.

– **Sarah Cohen**, President,
Route 11 Potato Chips

“This year was a 100 percent unprecedented poor harvest ... All of the growers have said that it is by far the worst season they've had, and some of them have been doing this for 30-40 years.”

– **Emily Best**, former General Manager,
Tuscarora Organic Growers Co-op

As Back Pocket grows next year and beyond, the way we manage our operation means that we can articulate our future purchasing specifically (like, to the day) and way in advance. That's an opportunity to coordinate with growers when they're still planning their season's production, and negotiate purchase orders before the seeds go into the ground. As a result, we hope that they can plant, grow, and sell additional tomatoes to us, over the top of what they would have already grown. Now we're 'coordinating' local supply and starting to de-risk growth for participating farms.

– **Will Gray**, Founder, Back Pocket Provisions; Program Officer, The Wallace Center at Winrock International

Contracts between institutions, food service providers, and broadliners can make it hard to shift commercial buying habits. Whenever there is an opportunity to review the contract, specifically specify some of the goals for procurement, I think that's an opportunity. Some of the contracts could range from 3-5 years to 15 years, and if the contracts are never reopened and renegotiated, it can be hard for institutions to go against the contracts. One positive development is that University of Virginia, George Mason University, Virginia Tech, and James Madison University have formed a Virginia-based sustainable food coalition to shift some of the power dynamic.

– **Eric Bendfeldt**, Extension Specialist, Community Viability, Virginia Tech Extension

There is a long-talked-about deal with butternut squash where TOG was asked by a big customer to grow butternut for them. A lot of growers got in on it, and a lot was produced. Then after the first or second shipment, the customer went elsewhere because TOG got underbid, even though we had an MOU. Now there's a real hesitancy to grow for large customers. When that sort of thing happens, the customers do what they want to do, and the farmer is stuck with product that they may or may not be able to sell. With butternut, it wasn't as bad because it stores well, and so they were able to move it. There's concern and worry about doing large deals like that for a perishable product because if it doesn't go when it's supposed to go, then it's just garbage. If there were deals set up that actually went through and worked

out several times, then there might be more trust on the part of the grower. Occasionally, the flip happens, as well. Last year we had a handshake deal with a customer on some root crops, and we fulfilled what they told us they would be buying, but then they actually wanted to take more and we weren't prepared for that. Now this year we're hearing that they want even more of these products, but it's too late for the season ... Improved communication so that the grower has adequate time to fulfill the need can be difficult sometimes.

– **Emily Best**, former General Manager, Tuscarora Organic Growers Co-op

Every food bank has a goal of increasing the proportion of food they distribute that's produce, and it's hard to come by affordable produce that the food banks feel like they can efficiently get through their network. Also, food banks are reliant on a smaller donor base to help them compete with the broader food market to source and procure nutritious foods that families can access at no cost. They're always looking for more opportunities to procure affordable produce locally ... Food banks are spending a higher proportion of their budgets on fresh produce than they ever have before, and we think there's a big opportunity to do more with seconds and thirds that are coming out of local growers' fields. Virginia also has a food crop donation tax credit that we've had in place for a couple years that allows farmers to get a tax credit for donating to food banks. But that's something we've really struggled to leverage. Each food bank has at least one person responsible for food sourcing, and

they develop relationships with growers and talk with them about the tax credit, negotiate prices on the fixed costs, and come to agreeable terms. They don't always have the time or resources to do that in addition to their other responsibilities.

– **Eddie Oliver**, Executive Director,
Federation of Virginia Food Banks

If local food can get to a point where we are demand planning from a regional perspective and we can match it to soil types in a region, the efficiency of our family farms is just going to skyrocket. An example in Ohio is that the eastern part of our state has very clay soil, so the food hub there literally did not think about carrots. Meanwhile, you go far west, to Oberlin, and they have an abundance of carrots that they're trying to sell because the soil mix is different. Before we started networking hubs across the state, there was no conversation happening like, "Hey, why don't you grow all the carrots for schools, and I'll grow all the hand fruit?" Just the ability to production plan will both help growers have more certainty in terms of their own farm sales and also allow us to get hyper-efficient in terms of yield. I think the ability to have regional datasets is going to be transformative. Already, we have been able to land larger contracts, and so just pure sales also brings people to the table to say, "I see how this shared growth is good for everyone." Even if ... a grower's percentage is smaller than it was before because the pie has grown, they're still winning in that scenario.

– **Cullen Naumoff**, Co-founder,
Farm Fare

“Food banks are spending a higher proportion of their budgets on fresh produce than they ever have before, and we think there's a big opportunity to do more with seconds and thirds that are coming out of local growers' fields.

We're working directly with local growers in Maryland and Delaware, some in Virginia. We work with them throughout the entire growing season as much as possible, and then we have to pivot to vendors outside the region to get other products. We're a food bank so we need to be thoughtful about how we spend our funds, so there are limited commodities that we really focus on here locally; for example, we're not buying berries because the price per pound would just be out of our scope. So we have those conversations ahead of time, and then throughout the growing year we're always checking in with them to see how things are going. Week to week we're figuring out the logistics.”

– **Molly McGlinchy**, Food Resources
Director, Capital Area Food Bank

A lot of the buyers, they want to plan their store layout or their menus. And they just want to know what's what's coming up, what could be grown, and some producers are just spec planting. It's kind of crazy that there's a ton of planting that happens because, "Oh, well, we sort of sold that much last year," or "We think there's going to be demand here. We're hoping that we bring it to our farmers markets, and we hope people are going to buy that stuff." Wouldn't it be a whole lot nicer if, for this thing that takes 90 days from buying seed until when we have first harvest, wouldn't it be great if I already had buyers lined up for that, or at least some insight into the market? I would pay a premium for that resource if I could sell product three months in advance and potentially on a recurring basis ... That foresight into the market is valuable to both sides of a transaction.

- **Rob Barreca**, CEO, Local Orbit;
Executive Director, Farm Link Hawai'i;
Owner/Operator, Counter Culture
Organic Farm

Blockchain technology allows for the rapid sharing of information both ways, which is to say, typically nowadays, the way that the food industry works is that the farmer grows the product, harvests the product, and gives it off, and it's basically, "My kid is going to college and I'm never going to see them again." They often don't know where it ends up, what the market value of that product is, whether they should be growing more, whether it's being wasted, if there is an opportunity for them to provide more. They've got access to another 22 acres that they could be farming. Is it worthwhile? The blockchain ecosystem provides the possibility.

- **Lou Izqueirido**, Global Sales Leader,
IBM Food Trust

RECOMMENDATION: The more data that runs through a food port, the more accurate production planning can occur, and the more opportunities there will be to support sustainability, conservation, and financial goals. A food port's model needs to be devised so that data flows up and down the supply chain, and producers and distributors need to be incentivized to run their local sales (and possibly their existing sales) through a port platform so as to benefit a larger goal of effective regional production planning. At the very least, incentivization should mean that sales that food port participants would have already made would occur without a transaction fee. Transaction fees, which would help sustain the system, would make more sense when a port's technology and network specifically have provided the opportunity to make the sale.

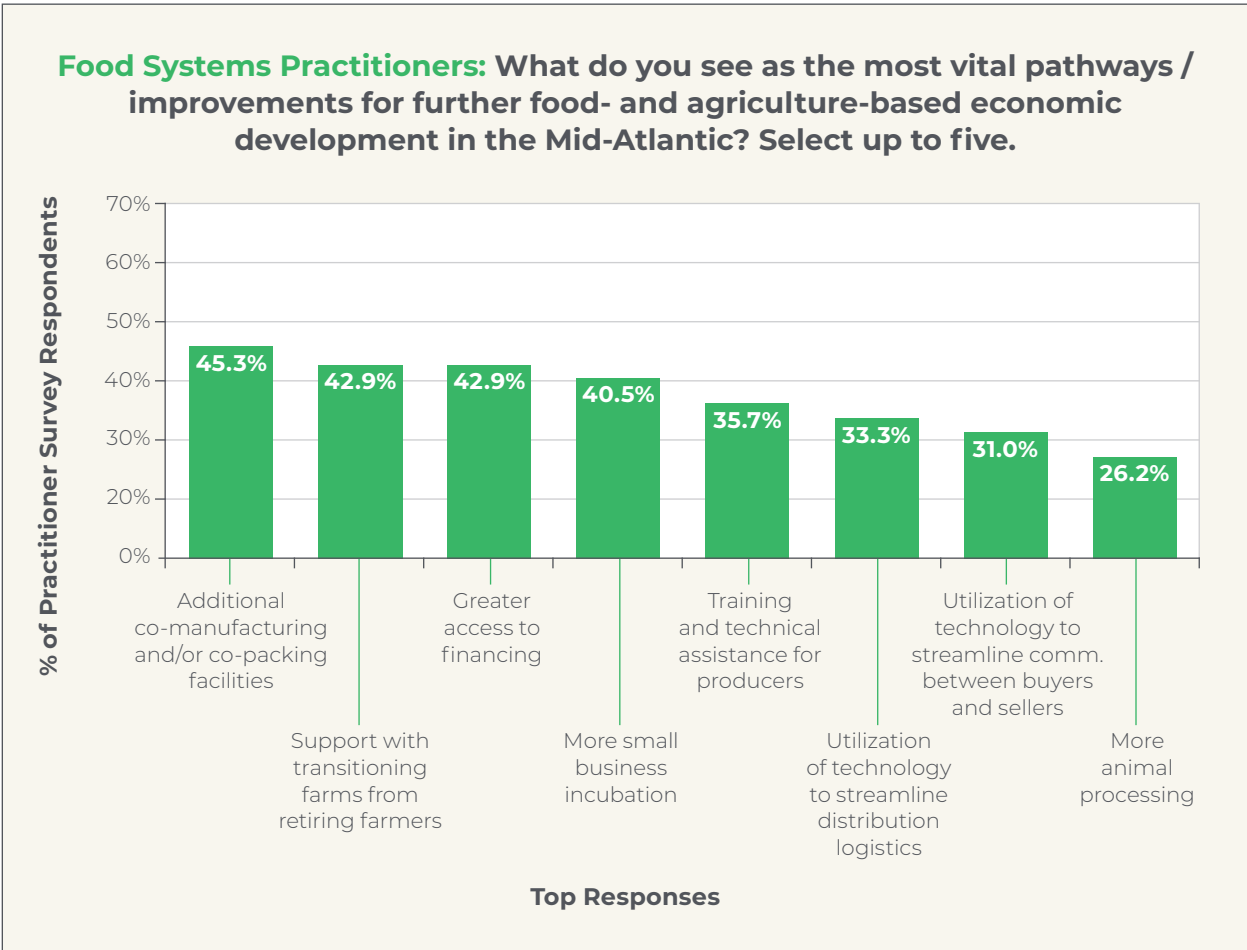
RECOMMENDATION: More data will allow for better production planning, and contracts with high-volume purchasers could follow suit. Early business development with high-volume purchasers is a worthwhile strategy for a food port to pursue to gain traction and help de-risk farm growth. If purchasers want to be able to benefit from the unique attributes of a local and regional supply chain, their commitments will be key.

FINDING 11

Processing offers unique opportunities to engage regional purchasers. Simultaneously, producers and distributors are seeking more opportunities to process the products they grow / sell. There are some success stories, but capacity is uneven across the region.

Almost all interviewees pointed to a need for processing, and producers, processors, distributors, and purchasers alike identify this infrastructure gap as it relates to their profitability. Poultry and livestock

processing, frozen fruit and vegetable processing, and co-manufacturing / co-packing were the gaps most commonly identified among survey respondents and interviewees. Among surveyed food systems practitioners specifically, 45.3 percent see “additional co-manufacturing / co-packing facilities” as the most vital pathway for furthering food-and-agriculture-based economic development in the region; 26.2 percent of practitioners also noted the need for “more animal processing.”



INTERVIEW HIGHLIGHTS

Value-added processing is an important strategy on different levels and in different situations ... Most farmers buy their inputs at the retail price and sell their products at a wholesale price, the exact opposite of larger businesses. We have funded more than 160 value-added projects, mostly “on the farm,” but there is no magic answer.

- **Stephen McHenry**, Executive Director, Maryland Agriculture & Resource-Based Industry Development Corporation (MARBIDCO)

One of the biggest challenges for meat producers right now is the lack of processing facilities. There are fewer and fewer slaughterhouses, and that’s created a huge issue in the meat market where farms have to transport their animals further and further to get USDA certification.

- **Caroline Selle**, Central Chesapeake Program Manager, Future Harvest CASA

In rural areas, sewer and water infrastructure are major issues. We have very, very little public sewer and water, and that limits the ability to do value-added agricultural activities.

- **Maureen Kelley**, Director, Nelson County (Virginia) Economic Development Office

We haven’t been in business quite yet three years, but I feel like we’ve made a very significant dent in the marketplace. And the way the product has been received, and the way that we’ve been able to get Virginia products into places like university dining halls, and some public school systems, in addition to restaurants and gourmet shops, has been encouraging that there’s a bigger market for food for locally raised food. We could literally double or triple our production in the next six months with a commitment from customers. Whether a broadliner, an independent distributor, a couple of restaurant groups, we’re just those commitments away from being able to really ramp up what we’re doing. And then we turn around and add multiple producers, a win-win. We know the demand is there and need to find the right customers.

- **Ryan Ford**, Owner, Seven Hills Food Company

The more frozen ... foods we can get, the better because that really extends the food shelf life. And so if we had more aggregators and processors providing that type of service to the food bank network, that would be a higher priority than even the fresh produce just because of the turnaround time and the shelf life.

- **Eddie Oliver**, Executive Director, Federation of Virginia Food Banks

It feels like there are missing [infrastructure] links in Northern Virginia that could help in getting more farm products into the D.C. metro area from places like the Shenandoah Valley. I think this is also more broadly true of the metropolitan region, but the type, number, and scale of these linkages are questions we need better information on in all cases.

- **Lindsay Smith**, Regional Food Systems Value Chain Coordinator, Metropolitan Washington Council of Governments

RECOMMENDATION: Based on the broad support for additional poultry and livestock processing throughout the region, as well as co-manufacturing / co-packing, and light processing and freezing of fruits and vegetables, it makes sense to prioritize these capabilities when planning for next steps in possible food port development.



FINDING 12:

Infrastructure for and expertise in consumer packaged goods (CPG) are more densely centered in the northern part of the region. Further developed infrastructure in the southern part could more evenly provide economic development opportunities. Aggregation and distribution for small- to mid-sized CPG companies represent a gap.

CPG companies are leaving the Mid-Atlantic in favor of metro areas that have more food production capabilities, and many are choosing the northern part of the region (New York and New Jersey), in particular. Some jurisdictions and private companies are looking at how to fill this gap further south in the region, namely in Maryland and Virginia. Co-manufacturing and co-packing remain strong needs. Once product is ready for distribution, the technology of a food port can streamline the ordering process for purchasers, making it more feasible to work with CPG brands that might otherwise find the process too complicating a factor for a purchaser without a large procurement team.

“There are a lot of food companies that have not been able to grow locally. They either leave, or they headquarter here and do all their manufacturing out of state ... all over the map, but not here.”

– **Sophia Maroon**, Founder and CEO,
Dress It Up Dressing

INTERVIEW HIGHLIGHTS

Operations like the Common Market or Lancaster Farm Fresh make it really easy to aggregate, and you can just kind of point and pick what you want. But that does not really exist for value-added products [CPG] in the area ... Distribution for value added is where there's real opportunity for improved technology and communication.

– **Maddie Morales**, General Manager,
Sweetgreen Tavern Market

I started talking to a couple of different liquor distributors, and they can't make enough off of our syrups to make working with us make sense. This is because the liquor bottles they sell is at 40 percent markup on top of a bottle that wholesales to them for \$15 or \$20, and our syrups wholesale at \$10.50. The margin just isn't good enough for them on a per bottle basis, because we're a lower priced item than the usual products they distribute, even though our product is a perfect complementary item to the liquor they already distribute.

– **Tory Pratt**, Founder,
Pratt Standard Cocktail Company

I think we need to increase our food infrastructure in the region significantly. We have a customer base, and a supplier base, but we don't have the in-between in the form of processing, manufacturing, and distribution that link the producer to the customer. And there are a lot of food companies that have not been able to grow locally. They either leave, or they headquarter here and do all their manufacturing out of state: California, New York, Maine, Wisconsin — all over the map, but not here.

– **Sophia Maroon**, Founder and CEO,
Dress It Up Dressing

Our move from D.C. to New York made sense on a lot of different levels. The new product development resources that we were coming across were largely based in the New York tri-state area or else on the West Coast, and some in Boulder, as well. There's a lot of infrastructure in the tri-state area for CPG that isn't really available in D.C. to the same extent. There's a stronger or larger CPG investor base in New York; there are more CPG brands based in the area, and so you have access to talent, or even just peer companies who can provide solid benchmarks for the R&D process. So many of the big distributors that we have worked with and want to work with are New York based. And the freight to get stuff from around Virginia up to New York would be tough. But I do think the port model could be really good for shifting the center of gravity away from the tri-state area for the things that we want to do. That's a long way of saying, not immediately, but I could see it being a game changer over the next 5 to 10 years.

– **Phil Wong**, Co-founder,
Misfit Foods

RECOMMENDATION: The southern part of the Mid-Atlantic region has a dearth of food- and agriculture-focused accelerator programs, and it is worth considering how a port model could incorporate acceleration or partner with an up-and-coming accelerator to add to a more vibrant sector.

RECOMMENDATION: There are multiple market assessments / feasibility studies on co-packing and co-manufacturing facilities that this research team has identified as under way just within the Washington, D.C. metropolitan area of Maryland. With the goal of complementing and not duplicating, it would behoove a food port development team to ascertain the direction of those projects (when the results are available), as well as a level of interest in or commitment to their development, before determining which processing, co-manufacturing, and / or co-packing capabilities should be a part of a food port processing facility.



FINDING 13

Once food safety systems are in place, a food port is running efficiently, and distribution channels are reliable, there are opportunities to help advance categories of the supply chain that (1) require more stringent food safety standards, (2) have not been doing well in the region, and / or (3) are newly developing.

Heirloom or organic grain represents a category that could potentially grow and be a part of a food port network, contributing to diversity of regional product and helping to boost viability. There is an increase in demand for local grain and for freshly milled product, and the capacity of the region to fulfill demand is limited. For example, of the 86 producers who replied to the online survey, not one indicated that they are growing grain.

Seafood distribution involves different time / temperature controls than land-based animals, along with unique labeling requirements, co-mingling standards, and even regulatory bodies to report to.²⁴ There is also a unique opportunity for collaboration and backhauling among other distributors who rely on refrigerated transportation. Food port technology could help facilitate this.

INTERVIEW HIGHLIGHT

From field to bakery, grain must undergo many stages of transformation. It has to be harvested at just the right time and then sorted and cleaned well. The equipment and processes involved can be very sophisticated. There is concern about mycotoxins and other problems that could make it unviable for purchase for a bakery. During storage it can become infested by insects or get moldy; and then there is milling, another huge piece of the whole grain saga. To do grain properly, you need to have good infrastructure ... and proper infrastructure is missing from our regional food system. Right now, if you go to all the restaurants and bakeries in D.C., with the exception of a few, they're getting flour from King Arthur or from mills in the Midwest. There are tons and tons of flour coming into the city every day. It's not from around here, and it could be. There are farmers willing to grow. They're looking to me to buy, but I'm one bakery, and I'm the only baker currently so I can't even make that much bread. There's also a common misconception that bread wheat doesn't grow around here, and that it only grows in the Midwest. That is complete baloney.

– **Jonathan Bethany**, Co-owner,
Seylou Bakery

RECOMMENDATION: Over time, a port model could move into additional product categories that have additional logistical or other complications. Specifically, there is significant opportunity to grow regional fisheries and, therefore, regional economic development. Yet seafood has a different set of food safety standards than other regional products, and there must be careful consideration about these distinct stringencies. A port might choose to work exclusively through partnerships with existing processors and distributors, weighing the cost-benefit of taking possession of product at warehousing facilities.

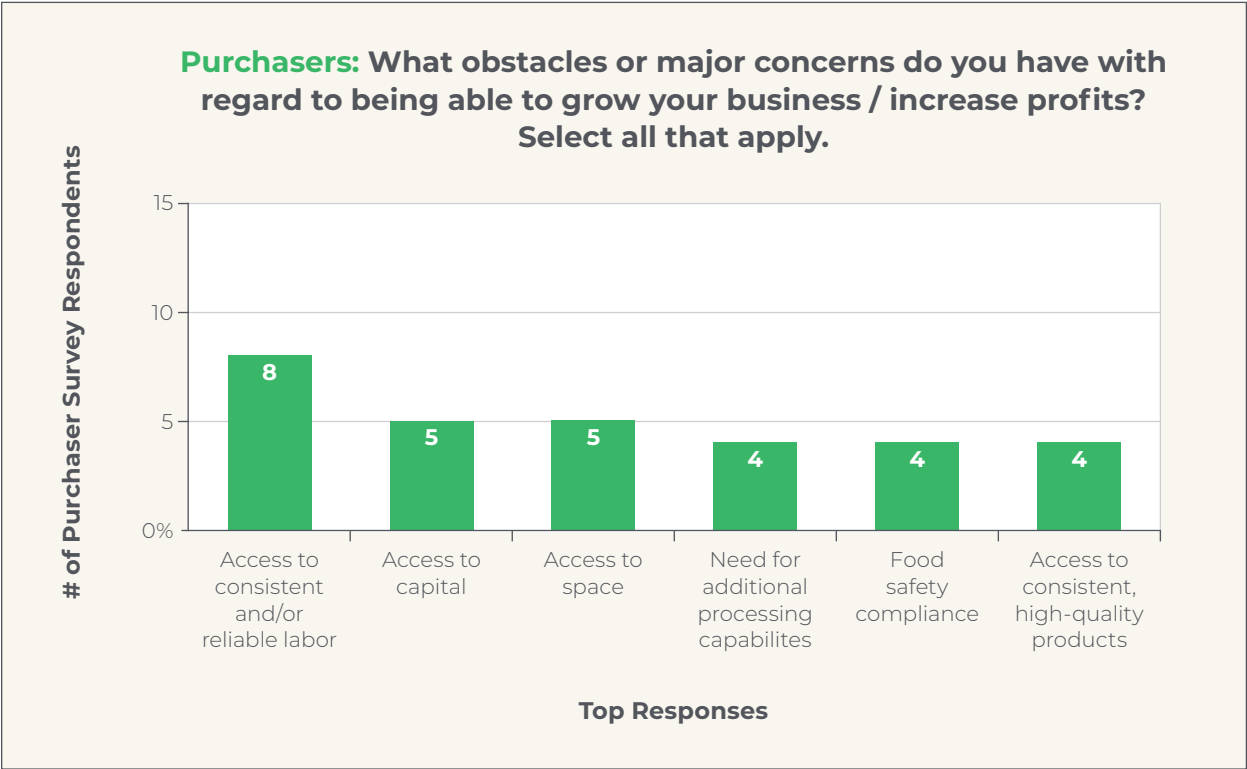
RECOMMENDATION: Subsequent investigation by a food port team or another food systems entity could include (1) a deeper understanding of the most effective way to support the region's dairies, in particular during this period of closures; and (2) a look at Greenmarket's Regional Grains Project in New York to see if their model could have application in the Mid-Atlantic region. Multiple interviewees cited unmet demand for local grain.

FINDING 14

There are multiple strategies that could enhance the viability of a Mid-Atlantic food port and its impact on economic development and time-critical issues like the conservation of agricultural lands. Producers and food systems practitioners cited labor; county, state, and federal policies; land access and cost; impact of climate change; and succession planning as the most significant issues, with labor by far highest on the list.

As illustrated in the graph on the following page, reliable labor remains a top barrier across the supply chain, ranking highest among purchasers. Interviewees from each stakeholder group attributed this to changes in immigration policy.





INTERVIEW HIGHLIGHTS

If an English as a second language teacher position was ever cut, the producers have stated time and time again, that they would fund the position: “We’ve got to have these teachers in place.” It’s those kinds of things that truly speak to our county’s commitment to agriculture, and its success here. And the children go on to be amazing adults who contribute so much. Of the six officers in the Future Farmers of America program in the state this year, two of them are from Nelson County.

- **Maureen Kelley**, Director, Nelson County (Virginia) Economic Development Office

For some of our food banks, TEFAP [The Emergency Food Assistance Program, funded through the Farm Bill] is up to 30 percent of their inventory. TEFAP could be designed in a way that leverages a stronger regional food system — buying locally and distributing locally. I would also like to see a system that is more responsive to what the need is, what the food insecurity rates are, and the capacity of food banks, as opposed to purely market forces. That’s the holy grail of how food banks could interact with the local food system in my opinion.

- **Eddie Oliver**, Executive Director, Federation of Virginia Food Banks

Labor is a constant issue, but it was especially hard this year ... Not only getting enough but also the quality of labor, too, knowing how to pick and what to pick. Also, there are policy considerations. With schools across the whole region, it's vastly different when it comes to procurement. Within Maryland, our food service directors have to pay the insurance, their staff, everything comes out of their budget to pay, as opposed to in Delaware where the state subsidizes half of staffing and their food service directors can pay more for local food. Out in West Virginia they did something really interesting because they have a different pot of money than Maryland does; I think it's a part of the TEFAP money. Because they consider local food and school meals as economic development, they're able to pay more for local food. And in D.C., with revenue from the bag tax, they can also afford more expensive local food...

– **Food systems practitioner who declined to be identified**

The biggest issues we're seeing, and this is nothing new, are continued consolidation of retail, continued requirements for food safety that push out small producers, and labor. Labor is a huge issue, as well. We've got to fix our immigrant labor situation. I think we just need to accept that hard farm labor is going to be done by immigrant labor. We just need to figure out how to make that work best for everyone, including the workers themselves.

– **Stephen Versen**, Manager, Agriculture and Forestry Development Services, Virginia Department of Agriculture and Consumer Services

The benefits of a regional approach are the sharing of knowledge and resources, as well as economies of scale. A challenge would be different states have different regulations, as do counties in some places.

– **Stephen McHenry**, Executive Director, Maryland Agriculture & Resource-Based Industry Development Corporation (MARBIDCO)

Most of the larger producers are multi generational. There is one century farm that I'm worried about right now. They're struggling with a succession plan. The farmer acknowledged that I asked him about his exit strategy 15 years ago. I'm sorry it's come to this now, but we have to move forward, and it's painful. One of the first things I talk about when I meet a new producer is, "What's your succession plan? What's your exit strategy?"

– **Maureen Kelley**, Director, Nelson County (Virginia) Economic Development Office

RECOMMENDATION: With federal trade and immigration policies in flux, land costs high, an aging producer population, and other considerations, it is key that a food port's leadership and its partners remain vigilant in leveraging relationships and policy opportunities to support the larger sector and food system.



CONCLUSION

The data, in aggregate, from a comprehensive literature review, development of case studies from around the country, 77 interviews with regional stakeholders, and more than 220 online survey responses, point squarely to positive impact of a food port model for the Mid-Atlantic region. There is demand for new infrastructure and technology solutions among producers, processors, distributors, and purchasers, as well as the food systems practitioners that support their work.

Specifically, the findings and recommendations from this research indicate that technology-powered networking among food hubs, co-ops, and others along the supply chain would help advance the regional food supply chain, with emphasis on rural agribusinesses and economic development. Logistics coordination, production planning, and more will be enhanced by such a project. There are already early signs of this type of networking and coordination happening in the region. Most notably, the pending merger of 4P Foods, a Benefit Corporation, with Local Food Hub, a non-profit organization, will bring scale and efficiency to their respective networks, benefiting both organizations' customer base, as well as the farmers and other producers they support. The two entities will continue to exist, merging key operational components so as to more efficiently manage and scale both sales and distribution while also allowing for enhanced assistance to producers as they work to meet increasingly strict food safety requirements.

Such efforts will not be as successful, however, without corresponding physical infrastructure, including a processing facility, likely in Virginia, paired with substantial warehousing. Satellite warehousing and cross-docking capacities, plus processing as needed throughout the region (dependent on the satellite locations), would round out a hybrid decentralized-distributed network model. Data indicate that processing needs are great throughout the region and include poultry and livestock, as well as co-manufacturing and co-packing of crops into value-added products. Frozen products, in particular, are in elevated demand among high-volume purchasers. The criticality of funders and buyers in the role as partners in bringing this infrastructure to fruition is tremendous.

Further, this network model will be most successful if it leverages the current infrastructure and assets, without duplicating resources. The scope of this research included information gathering around existing agricultural, processing, and distribution assets; a more targeted assessment of such assets could help direct resources for the most high-impact investment and build on the achievements of the businesses that already exist. It is also imperative to view community resources, including the region's growing population diversity, as strengths from which to build resilience.

Mindful of the encouragement of many hub operators to move forward with the food port vision, while also learning from their mistakes and successes, the authors' recommended next steps are simultaneously action-focused and methodical. One food hub leader summarized the sentiment of many when saying, "Don't study it forever. Get off the couch and do it."

SUGGESTED NEXT STEPS INCLUDE

- a comprehensive business plan for the development and operation of both the physical infrastructure and technological backbone, including ownership structure and early identification of potential mission-aligned anchor tenants to be co-located in a central processing facility;
- generating the technological requirements for an online platform / application; parallel conversations regarding supply and the technological requirements for the food hubs, co-ops, and other distributors that are interested in participating in a port; estimating the total cost of the technology and creating a road map for its development;
- an expanded audit, beyond the scope of this research, of existing and planned production, processing, warehousing, and distribution assets; mapping the findings with GIS, the results of which would feed into site selection for a central processing facility and satellite warehousing and cross-docking locations;
- final determination of the type(s) of processing for a central facility based on the above and all of the data already collected through this research; and comprehensive engagement of the communities where such a facility might be developed to ascertain interest and concerns, and to cultivate genuine partnerships and potential leadership;
- engaging an architect and contractor to develop early schematics; estimating the cost of building out the physical infrastructure;
- deeper assessment of strategies regarding how a port could contribute to an inclusive regional food system, including, for example, being proactive about outreach to distributors that intentionally and meaningfully include women, minorities, and other disenfranchised groups in their producer networks;
- preliminary business development on the demand side to generate interest and pave the way for high-volume sales, helping to close the gap between local procurement goals and actual procurement dollars; looking to high-volume buyers for commitments to and leadership in purchasing more local food as this project, and others, come online in the region; and
- initiating a capital raise, in particular a blend of non-equity-based philanthropic seed funding, governmental funding, traditional investment, and possibly debt from community-based or non-profit lenders. (The graphic on the following page depicts what this blended-stack model could look like, with specific examples from New England.²⁵)

The suggested next steps from the previous page are critical to bring the Mid-Atlantic food port concept to fruition, and they require both unfeigned aspiration and sizeable resource commitment. Engagement must be simultaneously deep and broad, being strengthened by the following tenets: (1) The diverse voices of growers and other producers, hub operators and other distributors, impacted communities, and more value chain stakeholders must not just be heard; they must be elevated throughout the duration of the project. (2) Funders across the region, from philanthropic partners to private investors, will need to work together

to advance such an undertaking, likely through a blended capital stack that allows for sufficient dollars and expertise across a timeline long enough for the project to reach stabilization. (3) Buyers in the region of all sizes who are not already committing to a regional supply chain need to make that commitment, whether through purchases or contracts that allow investors and project leadership to move forward with fundraising, planning, and execution. Together, all of the above can enable a Mid-Atlantic food port to create the positive, fundamental shift in the regional food system that the participants in this research are seeking.

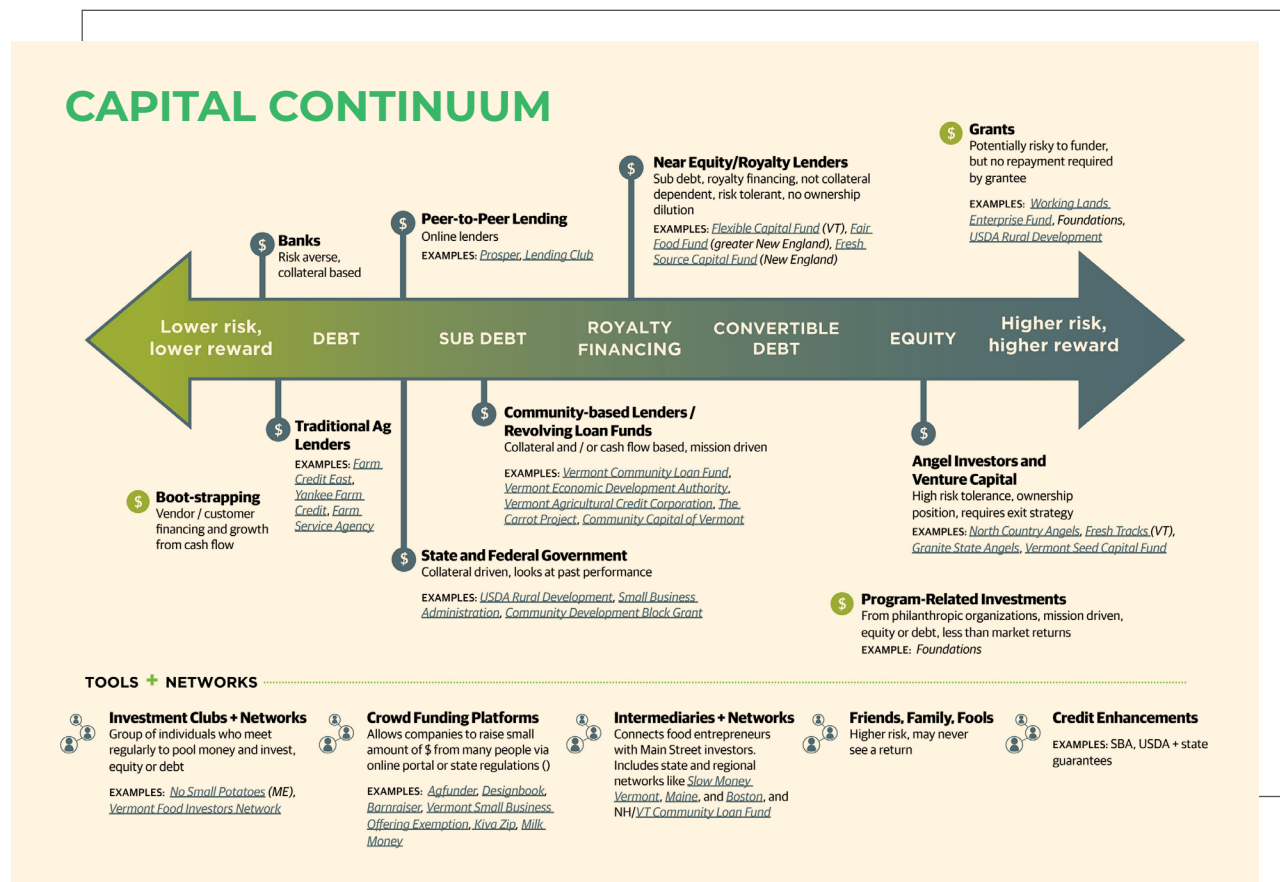


Image credit: Vermont Farm to Plate Network
<http://www.vtfarmtoplate.com/getting-to-2020/20-access-to-capital>



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“One cannot think well, love well, sleep well if one has not dined well.”

—Virginia Woolf, *A Room of One’s Own*



APPENDICES

APPENDIX A: LIST OF INTERVIEWEES

- Matthew Adams, Chef, Red Hen
- Mikey Azzara, Founder and Owner, Zone 7 Food Hub
- Matt Baker, Executive Chef and Owner, Gravitas
- Rob Barreca, CEO, Local Orbit; Executive Director, Farm Link Hawai'i; Owner / Operator, Counter Culture Organic Farm
- Paul Baudier, Managing Director, East Coast Co-packing
- Eric Bendfeldt, Extension Specialist, Community Viability, Virginia Tech Extension
- Emily Best, formerly General Manager, Tuscarora Organic Growers Co-op
- Jonathan Bethony, Co-owner and Head Baker, Seylou Bakery and Mill
- Rick Billings, Director of Research Development, Think Food Group
- Dalila Boclin, Food Access Director, Community FoodWorks
- Nikko Brady, Office of the Secretary, Deputy Principal Assistant, Delaware Department of Agriculture
- Erin Caricofe, Food Systems Contractor
- Christy Cheng, Architect, OMA
- Andrea Christman, Sales Representative, B-Line Urban Delivery
- Sarah Cohen, President, Route 11 Potato Chips
- Crystal Cun, Brand Manager, Fleisher's Craft Butchery
- Donald J. Darnall, Executive Director, Maryland Food Center Authority
- *Declined to be identified*, Business Development Manager, Large-scale direct-to-consumer distributor
- *Declined to be identified*, Store Manager, Major grocery chain
- Andrea Early, Executive Director of School Nutrition, Harrisonburg City (Virginia) Public Schools
- Katie Farnoly, Local Farm Coordinator and Produce Buyer, Coastal Sunbelt Produce
- Karen Fedor, Senior Agricultural Marketing Specialist, Maryland Department of Agriculture
- Ryan Ford, Owner, Seven Hills Food Company
- Will Gray, Founder, Back Pocket Provisions; Program Officer, The Wallace Center at Winrock International
- Maria Graziani, Extension Educator, Penn State Extension
- Trista Grigsby, Farm to School Specialist, Virginia Department of Education's Office of School Nutrition Program
- Casey Gustowarow, Farm Manager, Farm at Sunnyside
- Barbara Harral, Assistant Director, Montgomery County Public Schools Division of Food and Nutrition Services (*via email*)
- Molly Harris, Founder and CEO, Lulu's Local Food

- Allie Hill, Board President, Virginia Food Works
- Dan Hobbs, Lead Co-op Development Specialist, Rocky Mountain Farmers Union
- Rick Hood, Owner, Summer Creek Farm
- Chris Horn, Regional Sales Manager, Tricking Springs Creamery
- Lou Izquierdo, Global Sales Leader, IBM Food Trust
- Celeste James, Community Health Executive Director, Kaiser Permanente of the Mid-Atlantic States
- John Johnson, Executive Director, Agriculture and Food Technology Park
- Maureen Kelley, Director, Nelson County (Virginia) Economic Development Office
- Anthony Kingsley, Local and Sustainable Product Lead, US Foods
- Kristen Markley, Mid-Atlantic Regional Coordinator, Health Care Without Harm
- Sophia Maroon, Founder and CEO, Dress It Up Dressing
- Abby Massey, Regional Manager MD, D.C., VA, Common Market
- Patrick Mateer, Founder and CEO, Sealing the Seasons
- Molly McGlinchy, Food Resources Director, Capital Area Food Bank
- Stephen McHenry, Executive Director, Maryland Agriculture & Resource-Based Industry Development Corporation (MARBIDCO) *(via email)*
- Colleen McKinney, Associate Director, Center for Good Food Purchasing
- Chris Miller, Director of Produce, MOM's Organic Market
- Patti Miller, Food Systems Consultant, Grow With the Flow Consulting
- Alan Moore, Development Manager, Apex Clean Energy; former Director of Distribution for Local Food Hub
- Maddie Morales, General Manager, Sweetgreen Tavern Market
- Carrie Murphy, Extension Educator, University of Delaware Cooperative Extension
- Cullen Naumoff, Co-founder, Farm Fare
- Susan Noble, Executive Director, Vernon Economic Development Association
- Eddie Oliver, Executive Director, Federation of Virginia Food Banks
- Katy Pelissier, Food and Farms Manager, Ecotrust
- Alison Pierce, Sales and Marketing, Grow Food Carolina
- Ryan Pierce, Founder, Fresh Impact Farms
- Tory Pratt, Founder, Pratt Standard Cocktail Company
- Matt Rales, Owner, A Perfect Day Farm
- Gabrielle Rovegno, Operations Manager, Montoya's Farm; Community Education Coordinator, Casey Trees
- Philip Sambol, Vice President of Operations, Good Food Markets
- Caroline Selle, Central Chesapeake Program Manager, Future Harvest CASA
- Emma Sharer, Redd Operations Manager, Ecotrust
- Diane Small, Produce Commodity Specialist, Sysco
- Lindsay Smith, Regional Food Systems Value Chain Coordinator, Metropolitan Washington Council of Governments

- Robin Smith, Director, Tractor Food and Farms
- Matthew Smythe, Resident District Manager, Aramark
- Tanya Spandhla, Founder, Passion to Seed Gardening
- Jesse Straight, Owner, Whiffletree Farm
- Kristin Suokko, Executive Director, Local Food Hub
- Falon Sweeney, Regional Brand Marketing, Sweetgreen
- Jody Tick, Chief Operating Officer, Capital Area Food Bank
- Allison Lilly Tjaden, Assistant Director, University of Maryland Dining Services
- Amber Vallotton, Fresh Produce Food Safety Team Coordinator and Extension Specialist, Virginia Cooperative Extension
- Marcel Van Ooyen, President and CEO, GrowNYC
- Stephen Versen, Manager, Agriculture and Forestry Development Services, Virginia Department of Agriculture and Consumer Services
- Steve Vilnit, Vice President of Marketing Development, Capital Seaboard
- Seema Wadhwa, Assistant Vice President Sustainability and Wellness, Inova Health System
- Tracy Ward, Executive Director, Easton Economic Development Corporation and Chesapeake Harvest
- Michael Waterman, President, Canopy Holdings (parent company of Hudson Valley Harvest)
- Adam Watson, Compliance and Grower Manager, Appalachian Sustainable Harvest
- Shelby Watson-Hampton, Director, Southern Maryland Agricultural Development Commission
- Laurie Wayne, U.S. Coordinator, Open Food Network
- Liz Whitehurst, Owner, Owl's Nest Farm
- Phil Wong, Co-founder, Misfit Foods



APPENDIX B: SAMPLE INTERVIEW QUESTIONS

Interviews consisted of between 10-15 questions and included customized questions for the individual interviewee. Each interview lasted about an hour. A sample of the standard questions for each stakeholder group is presented here, adapted for this format.

1. PRODUCERS

- a. Do you prefer wholesale or direct-to-consumer sales? How do you sell customers on the value of the quality of your products?
- b. What are your methods of distribution or delivery?
- c. What are your challenges for scaling up production?
- d. Do you have the necessary insurance/certifications to meet the risk management standards of institutional purchasers?
- e. Please elaborate on what your experience with accessing market-related technology, such as online ordering platforms, access to dynamic wholesale pricing, and integrated distribution channels.

2. PROCESSORS

- a. Do you experience specific challenges working with smaller scale producers? Does this differ with mid-sized producers, and if so, how?
- b. In your experience, are there barriers in terms of local producers being able to meet the quality control and safety standards of large institutional/wholesale purchasers? If so, what are they?
- c. How does the current aggregation and distribution system impact your producers?
- d. What do you believe is needed to shift institutional and other commercial buying habits toward more regionally produced food?
- e. With your current operational footprint, by what percentage would you be able to scale up production if there were a reliable new market for your product?

3. PURCHASERS

- a. Why do your customers choose you over your competitors?
- b. Do the sales targets or supply chain management of your company impact your regional food offerings?
- c. What does new product approval look like in your company?

- d. Does your company provide any assistance to small producers who do not have administrative/risk management departments, to successfully complete the process for new product approval? If so, what does that look like? If not, do you know if such an idea has been considered?
- e. In your opinion, are your corporate quality control and safety standards attainable for small, local producers?

4. DISTRIBUTORS

- a. Is your current offering of local/sustainable food a barrier or an asset to acquiring new customers?
- b. Please tell me more about your company's barriers to distributing more local food products.
- c. Has your company considered capital investment partnerships with local food producers/fabricators that would enable them to meet your food safety requirements?
- d. In your opinion, are your quality control and safety standards attainable for small, locally or regionally based producers?
- e. Can you elaborate on how technology plays a role in your business? Do you envision the role of technology expanding over the next 5 years? If so, how?

5. FOOD SYSTEM PRACTITIONERS (e.g. Extension agent, state or county agriculture development officer, state or county economic development officer, and others)

- a. In your opinion, what are the greatest barriers for producer success and growth in your part of the region?
- b. Do producers have suitable business training available to them so as to help their operations succeed? If not, what additional resources are needed?
- c. What technical/financial/administrative assistance is available for farmers wishing to scale up production in the part of the region you cover?
- d. Is the current aggregation and distribution system for small-scale farmers in your area an asset or a hindrance to their growth and success?
- e. Do you believe there are concrete changes that can be made to shift institutional and commercial buying habits toward more locally or regionally produced food? If so, what specifically do you think would impact this? If not, why not?

APPENDIX C: SAMPLE ONLINE SURVEY QUESTIONS

Survey respondents self-identified as belonging to one of five categories, based on their primary revenue source — producers, processors, purchasers, distributors, and food system practitioners. The latter was defined as those who do not have a direct link in the supply chain and instead have a supporting or facilitating role, such as extension agents and value chain coordinators. Respondents completed a set of survey questions based on how they self-identified.

Survey respondents answered up to 25 questions, depending on stakeholder group. Additionally, all survey respondents were asked about the use of technology and if / how technology can further help their bottom line / positively impact the regional food system in the near term. Sample questions specific to each stakeholder group are presented here, abbreviated due to length.

1. PRODUCERS

- a. How many family members are owners and operators / employees, including yourself ?
- b. If accessing a suitable processing facility is an obstacle for your business, please elaborate on the issues you are facing.
- c. To whom do you sell directly?
- d. If there were a new regional wholesale market opportunity, what would be most important for your participation?

2. PROCESSORS

- a. About how many producers / ranchers do you work with?
- b. If time and/or money were less limiting factors, how would you choose to expand your business?
- c. What are any obstacles or major concerns you have that impact those goals?
- d. If there were a new regional wholesale opportunity, what would be most important for your participation?

3. PURCHASERS

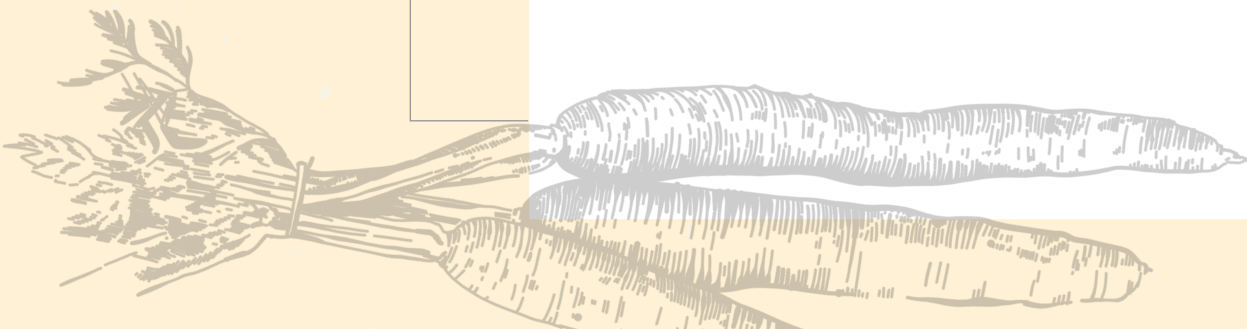
- a. Which regional products do you typically buy?
- b. What premium might you be willing to pay for product created with niche production/processing methods and / or certification(s), such as humane handling or certified organic?
- c. Approximately what percentage of the products you carry would you say are regionally produced?
- d. What are any obstacles or major concerns you have with regard to being able to grow your business / increase profits?
- e. If there were a new regional wholesale market to source from, what would be most important for your participation?

5. DISTRIBUTORS

- a. What are your processing capabilities?
- b. What categories of products do you distribute/broker?
- c. What are any obstacles or major concerns you have with regard to growing your business / increasing your profits?

6. FOOD SYSTEM PRACTITIONERS

- a. What do you see as the most vital pathways / improvements for further food- and agriculture-based economic development in the Mid-Atlantic?
- b. Are there any physical or technological infrastructure projects in development in your part of the region that you think have potential for significant positive impact on the regional food system?



APPENDIX D: INFRASTRUCTURE OPENINGS, IN DEVELOPMENT, OR UNDER REDEVELOPMENT, AS IDENTIFIED VIA SURVEY AND INTERVIEWS

1. 4P Foods' new facility in development, Vint Hill, VA (to include cold storage and value-added processing for produce)
 2. Anchors in Resilient Communities (ARC), Mid-Atlantic region, Health Care Without Harm
 3. Disciples Kitchen, VA
 4. Food Innovations Lab, Virginia Cooperative Extension (Virginia Tech University and Virginia State University), VA
 5. The George Washington Carver Food Enterprise Center, VA
 6. Hatch Kitchen RVA, Richmond, VA
 7. Lawrence County Enterprise Engine, PA
 8. Local Environmental Agriculture Project (LEAP), VA
 9. Lovettsville Grocery Co-op, VA
 10. The New Ag School, VA
 11. Maryland Food Center Authority's proposed redevelopment, Jessup, MD
 12. South Central PA Harvest Hub, PA
 13. Southern Maryland Agricultural Development Commission's Regional Agriculture Center, MD
 14. Southern Virginia Food Hub, VA
 15. Tradepoint Atlantic at the Port of Baltimore, MD
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APPENDIX E: INFRASTRUCTURE CLOSINGS AND ACQUISITIONS, AS IDENTIFIED VIA SURVEY AND INTERVIEWS

1. Cool Hand Meats, NC
2. Foothills Pilot Plant, NC
3. Door to Door Organics, 18 states plus D.C.
4. Ettline Food Corporation, PA (acquired by Gordon Food Service)
5. Fair Food Philly, PA
6. M&M Meats, MD
7. Pilotworks, multiple locations, including NY, NJ
8. Smucker Farms of Lancaster County, D.C. store

APPENDIX F: RELEVANT TECHNOLOGY IN EXISTENCE OR IN DEVELOPMENT

1. **Aggregator:** online marketplace connecting commercial buyers of produce to small farmers
2. **Broadband:** high-access internet service offered in four forms: DSL, fiber-optic, cable, and satellite. The Federal Communications Commission has established a speed benchmark of 25 Mbps download/3 Mbps upload.
3. **Convoy:** network of tech-enabled trucking companies. Convoy uses a mobile app to match reliable carriers with companies that need to ship freight.
4. **Crave:** app developer that offers e-commerce, marketing, and data solutions that help businesses engage consumers and track performance
5. **Cureate Connect:** local and regional online solution that supports food entrepreneurs by creating connections for regional procurement for small businesses to scale within a city
6. **Descartes Labs:** cloud-based solution for data collection and calibration from public and commercial sources. Data are stored in a catalog, available for scientific analysis
7. **Dexai Robotics / Alfred:** automated food preparation technology. Alfred receives order requests from existing POS systems, uses existing utensils to pick up ingredients, and assembles a recipe.
8. **Farm Fare:** online platform / app that connects food hubs, food buyers, and food producers to create more streamlined distribution networks
9. **Food Logiq Connect:** food safety and traceability software that allows food companies to capture the data needed for a transparent and FSMA-compliant supply chain that also is traceability-enabled should a food safety issue arise
10. **Foodshed.io:** mobile marketing app and logistics platform that connects small-scale producers to chefs, supermarkets, and institutional buyers within a 250-mile radius.
11. **Freshspire:** online local wholesale marketplace / app that connects farmers to food businesses to sell their produce
12. **IBM Food Trust:** blockchain technology that enhances visibility and accountability in the food supply chain. It connects growers, processors, distributors, and retailers through a permissioned, permanent, and shared record of food system data.
13. **Just Food ERP:** enterprise management software designed for food companies
14. **Local Line:** sales and distribution software for food suppliers to manage products, customers, orders, deliveries, and payments
15. **Local Orbit:** online, fee-based e-commerce software specifically for local food sales and distribution
16. **Lulu's Local Food:** cloud-based e-commerce solution that provides innovative software for operating online farmers markets, food hubs, and CSAs

17. **Market Maker:** national network / database connecting farmers, ranchers, fisheries, farmers markets, processors, packers, wineries, and buyers
18. **Open Food Network:** open source platform that supports global collaboration on projects geared towards food system transformation, specifically across the supply chain
19. **Ripe.io:** blockchain technology that maps the trajectory of the food supply chain to create a transparent, digital system and record
20. **Routific:** route-optimization software / app for last-mile delivery of perishables and other consumer goods
21. **Uber Freight:** app that directly connects shippers of all sizes to a carrier network, including instant upfront load pricing and shipment tracking in real time




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