

Local Food Supply Chains: connections between independently owned processors and grocers

This research supported understanding of the local and regional food supply chain, independent grocers and processors and the impact on community. The initial intent was to include both literature review and case studies; however due to COVID-19, case study interviews across Iowa could not be completed. The following report details best practices identified through literature review and case study precedents across the globe to understand best practices related to developing local and regional supply chains in Iowa. This research report was an effort to understand impacts of the supply chain, and particularly independent processors and grocers, on community including areas of economy, equity, environment, education, wellness and policy.

**This report was prepared by Lisa Bates, Courtney Long and Bre Miller
Iowa State University Extension and Outreach**

Overview

Iowa, while typically known for commodity and conventional growing systems, is increasing its efforts to support local and regional food production, including specialty crops and livestock. Iowa edible horticulture farmers often are relatively new to horticulture production, and of the new farmers beginning to grow horticulture food crops, they are growing on fewer acres than previous horticulture farmers. According to the 2017 Census of Agriculture, Iowa has 2,575 farms selling food direct to consumers. The same census indicates only 558 farms selling directly to retail markets, institutions and food hubs for local or regionally branded products (USDA National Agricultural Statistics Service, n.d.).

Within processing, Iowa has 30 federal inspected red meat, 2 federal inspected poultry and 70 combined processing operations. It also has 38 state-licensed red meat slaughter and processing facilities, one state-licensed red meat slaughter facility, and 26 state-licensed red meat processing facilities. The state has only 12 state-licensed poultry slaughter and processing facilities. There are 73 custom red meat slaughter and processing facilities and only 8 exempt poultry facilities (Iowa Department of Agriculture and Land Stewardship, 2020). Iowa has limited fruit and vegetable processing capacity. Iowa Choice Harvest was the only individually quick-frozen (IQF) facility licensed in Iowa to process wholesale, local fruits and vegetables. In 2019 this business closed due to both storm damage and financial struggles.

Shared-use kitchens and licensed kitchens to rent have become increasingly needed in Iowa, as seen in other states. There are five shared-use kitchens identified through the [Iowa Kitchen Connect](#) tool; however, several others exist around the state as options for producers and food businesses to process products. In 2019, a collaborative team from Iowa State Extension and Outreach interviewed 14 businesses across the state about their interest for scaling-up processing of specialty crops. Results led to further exploration of the need for increasing licensed kitchen space and support for multiple tiers of processing for both specialty crops and meat.

Procurement and distribution are critical for both raw and value-added products to get to market. Producer use of direct-to-consumer markets dropped from 64% in 2000 to 54% in 2015; use of both direct-to-consumer and wholesale markets remained steady at 27%; and use of wholesale outlets only increased from 9% in 2000 to 19% of typical market sales in 2015 (Enderton A. , Bregendahl, Swenson, & Adcock, 2017). Eight food hubs in Iowa support delivery of products from farmers to buyers, covering most of the state besides northwestern Iowa. The hubs vary in scope from retail and direct-to-consumer sales, wholesale and institutional sales and hybrid of both models. Each food hub has seen different levels of success and uses different types of business models (Iowa State Farm, Food and Enterprise Development, 2020). Existing infrastructure has not allowed for an easy transfer of products between food businesses and hubs, showing the need to develop a more connected and potentially larger supply chain. For example, there are several regions across the state, including northwest Iowa and parts of north-central Iowa, that are not served by a food hub (Iowa State Farm, Food and Enterprise Development, 2020).

Additionally, increasing market demand and understanding appropriate needs from buyers including grocers, institutions, retailers, etc., is a critical component for ensuring a sustainable and economically viable supply chain. The rest of this reports details concepts for local and regional food supply chains, independent processors and independent grocers. Each section analyzes impacts within each sector on community assets, adopted from the community capitals framework based on community dialogue for food systems development:

- *Equity: equitable access to social goods, services, property, freedom of speech; includes equal opportunity for access to a healthy and good quality of life*
- *Education: experiences and programming related to food systems and health for a deeper understanding and increased opportunities to build skills*
- *Wellness: positive health status of a community, and individuals who live in it, as it relates to access to affordable and effective options for quality of life*
- *Environment (built and natural): surrounding conditions that include both natural environment and built space in which a person or animal lives*
- *Policy: principles or actions that have been adopted by governments, businesses and individuals to guide decisions and achieve rational outcomes*
- *Economy: wealth and resources of a community or region that relate to the development and consumption of goods and services*

COVID-19 Impact

Farmers experience impacts to COVID-19 in exceptional ways, including as essential workers. The Pennsylvania Department of Agriculture stated it well: “Agriculture’s role is unquestionable: access to food is a right, we need local agriculture now more than ever” (Smith-Brubaker, 2020). An [economic impact assessment](#) was completed for the National Sustainable Agriculture Coalition in March 2020 to understand the impacts of COVID-19 on farms that sell into local markets. This study included farmers markets, farm to school and food hubs serving other institutions and restaurants. The study predicts a “\$689 million decline in sales from March to May 2020, leading to a payroll decline of up to \$103 million and a total loss to the economy of up to \$1.3 billion” (Thilmany, Jablonski, Tropp, Angelo, & Low, 2020).

The National Restaurant Association [predicts](#) restaurant sales will decline by \$225 billion over the next three months, leading to a loss of 5 to 7 million jobs. The [results](#) suggest that 75 percent of restaurants that had been forced to close would not be able to reopen if the shutdown lasted two months (National Restaurant Association, 2020).

Grocery stores were deemed an essential industry throughout the COVID-19 pandemic and have undergone vast changes over a short period of time. The National Grocers Association (NGA) states that the pandemic brought more changes to the food retailing industry over the last three months than in the past decade, including changes in the supply chain and shifting consumer demands. The pandemic has led to new consumer and retailer behaviors. The NGA believe that procedures will continue to involve more frequent cleaning, more consumers preparing food at home and customers demanding a positive shopping experience (Dudlicek, 2020).

The meat processing industry also has experienced challenges due to the COVID-19 pandemic, resulting in increased retail prices and decreased supply (Johansson, 2020). The meat industry was also deemed essential, which led to fostering harmful work environments for some industry employees. As of May 31, 2020, there were 16,233 workers with confirmed COVID-19 cases across 239 meat processing facilities and 23 states (Center for Disease Control and Prevention, 2020). The Center for Disease Control and Prevention (CDC) has published guidelines and suggested practices for facilities to combat the spread of the virus and maintain a healthy work atmosphere. While these challenges impacted large-scale processing facilities, small-scale and independent processors saw the opposite effects, seeing increased demand and increased direct sales to local customers (Goodrick, 2020; Held, 2020).

Report:

The following sections review three areas: the supply chain (or aggregation and distribution of product), independent grocers and independent processors. Each describes the topic at hand, benefits and challenges and impact on the community. Each is based on literature review and case studies.

Next steps

The team will continue to research direct-to-consumer markets and retailers for utilizing a mobile processing cart to increase sales of fruits and vegetables. The design of the modular cart will include design and prototyping for eventual application to the USDA Equipment Grant Program in May 2021.

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Local and Regional Food Supply Chains

Local and regional food supply chains involve several sectors of the food system including producers and farmers, processors, distributors, retailers and food establishments. Food supply chains can be seen at many different scales: global, national, regional and local. Local food supply chains may exist between just a few business partners such as farmers markets and direct to consumer sales, while regional food supply may incorporate farmer cooperatives and food hubs distributing wholesale products between farmers and buyers. Many different actors engage within food supply chains and include not only those who produce, process and distribute food but also those who make decisions on which processes are used and where products are handled, such as policy makers, economic development and public health institutions.



Local and Regional Food Supply Chain

Benefits:

- Collaboration between and across supply chain actors as well as community asset areas can lead to increased funding and local investment
- Can occur at variable scales and structures depending on the needs, values and opportunities within the community
- Local and regional food supply chains support access to food and typically involve community efforts to alleviate hunger
- New technologies allow for increased traceability relating to food safety concerns
- Policy support can occur at the city, region or national scale for development and sustainability of long-term supply chain efforts
- Promote and build awareness of local and regional businesses
- Opportunity to educate public on local and regional product supply and practices

Challenges:

- Logistics and coordination between supply chain partners (farmers/ distributors) can be difficult without partnership development
- Corporate infrastructure and development can diminish community processes and limit perspectives to only economic gain
- Infrastructure demands for dry, cold and frozen storage including warehousing, transportation and general building operations
- Food supply chains are responsible for 31% of greenhouse gas emissions (Accorsi, Cholette, Manzini, & Tufano, 2018)
- Food hubs are typically not profitable due to difficulties in balancing supply and demand, equipment and transportation costs
- Local and regional food traceability continues to be challenging and has additional hurdles for tracking and ensuring best handling practices

Impacts:

- Economy: Sales of local food to grocery stores, restaurants, residential food service operations, food hubs, food auctions and other high-volume markets rose from \$8.9 million in 2012 to \$13.1 million in 2013, for a total of more than \$22 million over the two-year period (Bregendahl & Enderton, 2014).
- Education: Farm to school is a growing effort that connects local and regional food supply to educational systems. In 2020, 42,587 schools or 42% of US schools responding to a survey are involved in farm to schoolwork, impacting 23.6 million students (National Farm to School Network, 2020).
- Environment: Direct-to-consumer (local and regional) producers are more likely than non-direct to consumer producers to use environmentally friendly practices or organic procedures (Low S. A., et al., 2015).
- Equity: Currently, people of color are disproportionately impacted by the food system from health to wages in a negative way. Creating an equitable food supply chain could support families in job creation, food access and strengthening the economy. "Food retailers can support in increasing home value... in Philadelphia a new grocery store supported the increase in home value by 4-7%" (Policy Link, 2016).
- Wellness: Between 30-40% of food is typically wasted within the United States food supply chain, with 31% occurring within the retail and consumer sectors (Food Waste FAQs, 2019). Local and regional food supply chains can reduce this percentage and get additional food to consumers directly; however, spoilage can still occur within the home.
- Policy: The federal farm bill supports direct to consumer and regional markets. Two of the programs available include the Farmers Market Promotion Program and the Local Food Promotion Program. Overall, \$30 million per year is allocated with an additional \$10 million in annual appropriations (Low, et al., 2015).

Economy

Local and regional food supply chains can support the economy by providing jobs to farmers, processors, distributors and retailers. Additionally, local and regional food supply can lead to increased market opportunities and allow for cooperation between farmers and additional food businesses. If done adequately, supply chain coordination can include resource-sharing, shared power in decision-making and ownership of businesses. Coordination between businesses and farms of differing scales has been shown to benefit both, allowing small farms, for example, to sell products into new markets that they would not be able to reach on their own. Economic development is one benefit of successful food supply chains within place-based communities, with the promotion of local, community-based jobs and wealth. However, design and logistics for adequate and strategic supply chains can be complicated; research and emphasis on appropriate infrastructure, storage, delivery and pick-up are needed to ensure a sustainable local and regional food supply.

CASE STUDY: FOOD HUB DEVELOPMENT IN IOWA (Enderton A. , Bregendahl, Swenson, & Adcock, 2017).

As of 2015, 31 food hubs or similar types of activities were operating throughout Iowa, mainly located near metros or appropriate aggregation locations. A study was conducted of 13 food hubs, as well as regional food coordinators, to understand conditions of food hub distribution. According to a report by Enderton and Bregendahl (2017), food hubs grossed \$4.5 million in 2013; however, the median of food sales by hubs was only \$114,000. Food hubs in the study employed 58 people, but typically hired part-time staff. Food hubs also supported 459 farmers across the state, leading to additional labor and economic contributions.

Education

Options for education within supply chains include building awareness with different actors of the supply chain and general public regarding the local and regional food supply and where to purchase products. This may also include opportunities for collaboration with colleges and universities, extension and other non-profit educators on the basics of supply chain logistics, farming, processing and distribution. Increased engagement and networking throughout the supply chain typically increases understanding of social responsibility within communities to purchase local and regional products. Additional areas of education relating to supply chains may include stability of supply chains and infrastructure involved, production systems and product competitiveness.

[CASE STUDY: CHANGING THE MENU—CANADA](#) (Nourishing School Communities Impact Report 2013-2016, 2016).

Local and regional food supplies connect through procurement at schools and institutions. A unique program, Changing the Menu, was started in Canada which led to an annual school food conference. The conference spurred a series of webinars to educate on the opportunities around local and regional procurement, as well as healthy food, food literacy, sustainable school food systems and connections within the community. During the first conference in Montreal in 2015, 450 individuals participated and shared their ideas for school food. Webinars now continue to take place to educate about additional ways of incorporating local and regional foods into school systems.

Environment

Environmentally sustainable food supply chains can be created through improved management, planning and traceability to improve environmental sustainability. Climate change directly impacts food systems in many ways, including production, distribution and consumption. Food production is impacted through warming climates and changes in temperature that impact plant and animal productivity. Additionally, the built environments in which supply chains operate also require deep understanding of product flows, including aspects of how goods are handled throughout the supply chain, who makes decisions, processes utilized and the node or location where each process takes place.

It is important to understand the impacts of each link within the supply chain, including tools to assess impact on the environment. This may include determining appropriate storage facilities based on location for the most environmentally conscious efforts, such as better food conservation and decreasing food miles. Throughout the food supply chain, it is critical to understand optimization within production and environmental management, including technologies for precision agriculture and inputs and locating facilities and understanding inventory throughout the distribution chain while also considering profitability and quality.

[CASE STUDY: AGRI-BUSINESSES USE OF SUSTAINABLE FARMING: BARILLA](#) (Pancino, Pascucci, Blasi, Ruini, & Ronchi, 2016).

Four agri-business companies including cooperatives of farmers and processing businesses collectively worked on sustainability and innovation techniques for their supply chain. All companies complied with Global Good Agriculture Practices (GAP), utilizing an [Sustainable Agriculture Initiative \(SAI\) Platform](#), and environmental stewardship production practices. Each company agreed to produce specific products and meet quality standards to create an “Italy-based” product. The Barilla Sustainable Farming (BSF) project, based on favorable rotations of durum wheat with other crops in addition to decision support systems, led to increase in income, and reduced environmental impacts (up to 35% of greenhouse gas emissions were reduced) due to increased efficiency in fertilization.

Equity

Supply chains can support social equity by involving various actors of the food system in decision-making. Food supply chains are operated within a highly capitalist system that has generated challenges to food access and food security as well as wage inequities and difficulty entering farming. Counter-movements to the corporate structure of food supply chains are beginning that put place-based, people-driven supply chains first. These counter-movements also include identification and acknowledgement of the racism, sexism and classism that have been a part of our food system since the beginning. From this acknowledgement, throughout all aspects of work, the next steps can incorporate inclusive and equitable tactics for all partners. Shared control and power in decision-making can help develop trust and equitable solutions among the partners within a regional supply chain. This can lead to enhanced coordination between farmers, suppliers and distributors.

CASE STUDY: INTERVALE CENTER (University of Michigan, 2009).

The Intervale Center is a Vermont food hub that includes 350 acres of farmland and is committed to transforming the local food system. Its mission is “to develop farm and land-based enterprises that generate economic and social opportunity while protecting natural resources.” This is a unique example of a food supply chain, as the organization itself has farming, composting, agricultural services, a nursery and an enterprise center within one location. In addition, Intervale Center works closely with the city of Burlington on innovative programs for future development and promotion of sustainable food system practices. The land farmed on the Intervale Center’s property supports 60 jobs within Burlington.

Wellness

Wellness and health connect to the food supply chain in various ways, from access and nutrition to population health and food safety. The food supply chain is a direct way to support food security and provide access to nutritious and culturally relevant food for all populations. However, populations may be at a disadvantage to access foods based on vulnerabilities, which connect directly with equity and wellness. From a food safety and health perspective, traceability concerns are important to consider within the food supply chain to assess and understand potential disease outbreaks. Many certifications and licensing options allow producers, businesses and additional organizations to verify their practices and showcase their measures to grow and supply safe foods.

CASE STUDY: FARM TO HOSPITAL—CALIFORNIA (Sachs & Feenstra).

Hospitals nationwide are increasing local food sourcing to improve health of patients. Serving locally sourced food has been shown to improve eating habits and encourage environmental and public health within the regional community. In the San Francisco Bay area, a partnership called “San Francisco Bay Area Chapter for Social Responsibility” is working on a Healthy Food in Healthcare Campaign to support food service directors in their efforts to procure local and sustainable foods. To expand the effort regionally, it is suggested to start with a small, informal project and identify ways of influencing organizations and supplier to source local. It is important to strategically adopt procurement systems and methods in order to effectively coordinate the supply chain. Similarly, within the organization, effective management is critical, and incorporating multiple units, such as food service, dietary and nutrition staff, clinicians, etc., can help share information with patients and visitors about the efforts going on regarding personal and public health through local foods.

Policy

City, regional and national policy can support the development and sustainability of food supply chains. Food policy is defined as an action on behalf of a government that addresses food-related challenges. Policies can include single-issue aspects such as infrastructure, food waste or climate and can also be collective approaches and cross-cutting opportunities for collaboration. In these multi-level conditions, policies at all scales can promote production, processing and distribution of local and regional foods. Local food supply chains occur mainly in direct-to-consumer markets and work closely with city or county jurisdictions. Creating city ordinances and policies to allow for particular growing practices, campaigns or business practices can build resilient opportunities for local food businesses. Another option is increasing collaboration to multiple counties, cities or states. These regional options will need additional support and cross-sector and cross-municipality policies that allow and promote distribution of regional products.

CASE STUDY: FARM TO SCHOOL POLICY (County Health Rankings, 2020).

When schools expose students to fruits and vegetables within the cafeteria and classroom, their health improves. Food service staff, school leadership and parents can support efforts by talking with students about local foods and nutrition. As of December 2018, 46 states had proposed farm to school legislation and 41 of those states had enacted legislation. Incentives for states to increase purchases of locally grown products can help the farmer, provide healthy options to students and create economic growth for the community. School wellness policies, state and federal legislation can all support in building opportunities for increasing local food supply chains.

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Independent Grocery

Independent grocery stores are important for food access in local communities. These stores are especially important in rural and low-income areas with high rates of food insecurity. Independent grocery store owners usually run fewer than four stores and often have low total sales and small margins. Research studies, in the following section, have found that independent grocery stores are important to the overall economic health of a community and its quality of life. Some of the following studies show that closure of an independent grocery store results in additional business closures and lower quality-of-life. The many changes in the food supply chain, major food retail outlets and big box retail have hastened the decline of independent grocery stores, especially in rural areas. For many rural communities, their independent grocery store is their only source for healthier food options.



Independent Grocery

Benefits:

- Opportunity to grow market share
- Community development
- Food access
- Support local producers
- Increase customer satisfaction and loyalty
- Expand healthier lifestyles
- Enhance customer perceptions
- Connection to community
- Creative business operations
- Walking distance to food
- Promotion of healthier lifestyles
- Economic driver
- Support local employment
- Local shopping

Challenges:

- Declining populations and customers in rural communities
- Changes in customer shopping patterns including driving to nearby chain stores
- High grocery store operating costs
- Narrow profit margins
- Lack of community support
- Supply of fresh products (demand vs. minimum purchasing quantities)
- Purchasing from local producers
- Labor availability
- Competition from chain stores

Impacts:

- Economy: “On average, a rural grocery store contributes \$644,000 to the local economy each year and employs around 17 people either full or part-time” (Arnold, 2019).
- Education: “The National Grocers Association poll in 2011 found that over 85% of customers said they chose a grocery store based in part on if it has food from regional producers” (United States Department of Agriculture (USDA), n.d.)
- Environment: “Retail store image, customer satisfaction, and customer loyalty are all connected” (Gupta & Pirsch, 2008).
- Equity: “In many rural and urban locations, small stores are the only access point for food but these stores often struggle to have healthy, fresh foods because of a lacking infrastructure and staff expertise to handle perishables, and they may not have access to suppliers or the time to handle more complex logistics” (The Food Trust, 2015).
- Wellness: “IDPH found the further people have to travel for fresh and healthy foods the more likely they will have diet-related chronic diseases such as obesity, diabetes, cardiovascular disease and osteoporosis” (Arnold, 2019).
- Policy: “In order to strengthen Iowa local food systems, Iowa leaders need to be more progressive and implement policy to encourage a profitable option to produce locally” (Krouse & Galluzzo, 2007).

Economy

Local grocery stores are found to not only supply food to their communities but are also employers, community meeting places and economic drivers. Research shows that when local grocery stores close, the community has a harder time recruiting new businesses; population and quality of life then decline. Food businesses, like local grocers, often also help their economies by purchasing from local farmers. In Iowa in 2010, the demand for local food was still higher than supply, because there are more institutions wanting to purchase more food from local producers. Without access to fresh foods, many communities become food deserts— communities without grocery stores to supply the food needed for healthy diets. Rural food deserts are those that are over 10 miles from food sources. Kansas State University’s Rural Grocery Initiative supports preserving grocery stores in towns of 2,000 or less. They have found that stores are critical to business development in communities. On average, a rural grocery store contributes \$644,000 to the local economy each year and employs around 17 people, either full- or part-time. Many times, rural grocers provide healthier food options than local convenience stores. The smallest of the grocery stores often sell locally grown produce when available. Additionally, they will purchase from discount retailers and aggregate product using their own staff.

[CASE STUDY: “SOLVING FOOD DESERTS IN IOWA: WHEN SMALL TOWNS LOSE GROCERY STORES, WHERE DO RESIDENTS TURN?”](#)
(Arnold, 2019).

Lenox, a town of approximately 1,400 people in southwest Iowa, is the home of Ramsey’s Market. The market faces similar challenges to other rural grocery stores in buying produce in bulk from regional suppliers. Theo Ramsey said because they are a small store, they throw out a higher percentage of produce than bigger stores. However, they do what they must in order to survive. The owner also stated they are concerned about what Lenox would be like without a local grocery store, because without access to fresh foods it is impossible to attract new businesses or people to a town.

Education

Over the last 30 years, market share for rural grocery stores has declined, and the closing of these stores correlates with declining population. Grocers can ensure a better market share in their community by educating customers on their products and services. In 2011, a National Grocers Association poll found that over 85% of customers said they chose a grocery store based in part on whether it offers food from regional producers. Grocers using local food systems need to convey information to their consumers so they can learn and feel connected to where their food comes from, allowing them to knowingly purchase goods to support their local economy. Communities can assist their grocers by supporting economic education to help small stores learn how to capitalize on customer preferences for local food.

CASE STUDY: "RURAL GROCERY INITIATIVE" (Larson, 2020).

The owners of the Hired Man's Grocery and Grill in Conway Springs, Kansas, population 1,272, know the importance of a grocery store in small towns. When the owners heard that the grocery store in town was closing, they opened a new one. Without a store, the community would lack access to perishable and healthy food options. They have utilized the Rural Grocery Initiative (RGI) at K-State to help them garner support in their local community. The RGI has provided the owners with suggestions, ideas, access to research and grant studies. They also have helped the owners educate their community on the importance of the store.

Environment

Some small towns maintain a more viable retail sector than others. Research studies have found that retail shopping in rural communities depends on the relative shopping value they create for their consumers. A retail store image is the way that customers perceive a store. Rural retailers can enhance their attractiveness and store image by catering to local and regional customers and avoiding direct competition with larger retailers that are able to offer lower prices. Retailers can improve their image by offering relevant merchandise and providing socially responsible goods and services. These things can improve perception of the store and create customer satisfaction and loyalty.

CASE STUDY: "THE PA FRESH FOOD FINANCING INITIATIVE: CASE STUDY OF RURAL GROCERY STORE INVESTMENTS" (The Reinvestment Fund, n.d.).

The Reinvestment Fund (TRF) created the Pennsylvania Fresh Food Financing Initiative (FFFI) to address a USDA national concern "that some poor or rural areas do not have access to supermarkets, grocery stores or other food retailers that offer the large variety of foods needed for a healthy diet" (The Reinvestment Fund, n.d.) The intent was to bring fresh and healthy food to communities across Pennsylvania through grants and loans to increase food access. Areas of funding include:

1. Modernizing rural grocery stores in need of updated displays, equipment, layout, lines of business and lighting
2. Opening or expanding prepared food and catering lines of businesses (consistent with recent trends in grocery industry)
3. Increasing sales and providing new employment opportunities
4. Providing integral financing for stores to accomplish their goals (leveraging funds with other lenders/private funds)

Overall FFFI funding facilitated growth in employment, sales and availability of fresh food in two rural regions. Stores began to offer prepared foods, upgraded produce cases, added energy efficient displays and lighting and installed high-speed checkout systems. These improvements benefit both stores and their communities, as stores gain sales and employees and the communities gain food choice, jobs and prepared meal options often locally sourced.

Equity

Sources for food in rural areas are declining, creating rural food deserts, leading to increased potential for food insecurity and related health issues. The lack of food access in rural areas disproportionately impacts the elderly and low-income residents, who often have transportation issues. The higher number of low-income households in rural areas often encounter higher food prices, less variety and lower quality fresh produce and meat than in urban retail. Rural areas have also experienced a decrease in diversity of agricultural production resulting in less locally produced food and greater distance for distribution between producers and consumers. Food travels an estimated 2,000 miles in the Midwest from its origin, which can lead to .08 cents of every dollar spent on transportation for rural grocers. This lack of healthy, fresh foods in small stores is a result of a traditional distribution system (The Reinvestment Fund, n.d.).

[CASE STUDY: "RURAL FOOD DESERTS GROW WITH CLOSING OF JESUP'S ONLY GROCERY STORE" \(Dewey, Louisa, Harrop, & Kieffer, 2019\)](#)

Communities in Iowa are seeing more of their community independent grocers closing, creating more rural food deserts. Some rural grocery stores can operate successfully and have done so in new and creative ways. One example is a rural store that has an additional warehouse, making it possible for them to buy in bulk and serve other food businesses within the community. Jesup, Iowa, population 2,500, is facing closure of its only grocery store. This is part of a larger trend and increases the rural food deserts in Iowa. It is getting harder and harder for communities under 3,800 to sustain a grocery store successfully. Between 1995 and 2005, Iowa's grocery store numbers decreased from more than 1,400 stores to just over 700. But during the same period, supercenters increased by over 200%, indicating it was the small stores that were closing. During same time period, towns of under 1,000 lost 43% of their grocery stores.

For those who have food assistance, they may lose access to those benefits or lose access to healthy food options.

Wellness

The third annual National Grocery Shoppers Survey (2018) found that over 80% surveyed prefer shopping at their local store to online alternatives. They also found that independent grocers with strong ties to their community know what their customers want and need. In 2017, the National Grocery Shoppers Survey found that consumer healthcare markets will grow by almost 50% over the next five years. This is in line with the NGA's 2018 study, which found that 63% of shoppers expect their grocery stores to help them with healthier lifestyles by offering such services as instructions on how to cook with certain foods, help with reading labels and general guidance on food for nutritional value. Independent grocers can more easily respond to changes in their community because they have deep connections in their area. Communication with customers is key to understanding food demand changes.

[CASE STUDY: "SOLVING FOOD DESERTS IN IOWA: WHEN SMALL TOWNS LOSE GROCERY STORES, WHERE DO RESIDENTS TURN?" \(Arnold, 2019\).](#)

Lone Tree, an eastern Iowa town around 1,300 in population, lost its only grocery store, and people no longer had a place to access items for healthy diets including fruits and vegetables. The Iowa Department of Public Health (IDPH) found that the farther people must travel for fresh and healthy foods, the more likely they will be to have diet-related chronic diseases such as obesity, diabetes, cardiovascular disease and osteoporosis. Iowa lost more than half of its grocery stores between 1976-2000 per the IDPH, so that only 63% of the census tracts in Iowa have access to a “healthy food” retailer within a half mile. This is 9% lower than the national average. Lone Tree is trying to solve part of this issue by providing a community garden to help provide fresh produce to the local community dining program

Policy

Grocery stores help people in their food purchasing. Research has found when people live near full-service grocery stores, they tend to have healthier diets and lower levels of obesity. And in rural areas with food deserts many are also seeing high poverty rates. While some states have enacted legislation to improve food access in underserved communities, a review of legislation from 2001-2010 found that Iowa had not introduced any such bills. (Fisher & Owen, 2019) Over the last 30 years, agricultural policies have led to more expensive produce farming and less healthy food environments. (Fisher & Owen, 2019) Some areas in farm and food policy can be aligned with national public health and nutrition goals. According to The Iowa Policy Project, in 2017, Congress passed the Tax Cuts and Jobs Act (TCJA) but instead of moderating the extremes of income inequality, the tax bill aggravates them and has impacts on small businesses like independent grocers. While other states in the Midwest explore the possibility of policies to help in rural food distribution and rural grocery stores, most are hoping consumers will organize and solve these problems on their own within their communities.

[CASE STUDY: “IOWA’S LOCAL FOOD SYSTEMS: A PLACE TO GROW” \(Krouse & Galluzzo, 2007\).](#)

Iowa farmers only grow an estimated 10% of the produce Iowans eat in the state. Most crops grown in the state are not grown for consumption in the farmer’s community. Going to Iowa’s grocery stores one will discover that most of the food comes from all over the US or the world. Iowans spend about \$8 billion annually on food and nationally citizens spend \$800 billion on food. Many foods consumed by Iowans can be produced here, including fresh fruits and vegetables, meat, dairy, eggs, poultry, grains and legumes. In 1920, 34 different crops were produced commercially by at least 11% of Iowa farms; by 2002 Iowa farms produced only 11 crops, with corn and soy vastly predominating.

Most Iowans buy their food in grocery stores and want fresh produce available year-round, which contributes to the globalization of the food system. More people are now interested in buying food closer to home. Local food items can vary, but the consumer is looking to buy from the closest source. Iowans’ demand for produce is much larger than the supply currently grown in the state. Farmers may be able to address this demand and work with local grocers to supply additional crops, meat and dairy. However, because of the globalization of the food system, local farmers compete with farmers around the world to produce at the lowest cost. In order to strengthen Iowa local food systems, Iowa leaders must consider alternative solutions and implement policies to encourage a profitable option to produce locally.

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Independent Processors

Independent processors play an important role in local and regional food systems, filling a gap in some regions that have high production but limited access to processing facilities. Both independent meat processors and independent fruit and vegetable processors provide increased access to infrastructure and equipment for producers. Independent processing facilities allow for small-scale producers and beginning farmers to add value to their product without having to meet state and federal regulations, such as high quotas. In addition, mobile processing units allow for equitable infrastructure for producers. Mobile processing units are a similar tactic that provides equitable access for producers by moving to different locations throughout a region, often on the production site. With growing interest in local production, independent processors help meet consumer demand for local food, increasing local food sales, creating a loyal customer base and fostering relationships between producers and independent processors.



Independent Processors

Benefits:

- Support local and regional economy
- Local reinvestment of profits
- Typically support animal welfare and provide transparent practices for customers
- Benefit small-scale farmers through decreased quotas and flexible operations
- Support direct-to-consumer sales and local markets
- Reduce food miles, ensuring higher quality products and nutritional value
- Increase farmer access to infrastructure and equipment and provide alternative processing options for farmers
- Support animal welfare

Challenges:

- The complexity of business regulations and licensing can generate difficulty for new businesses
- Finding and retaining skilled workers
- Displacement of small-scale meat processors can occur due to vertical integration in industry
- Seasonality for independent meat and produce can stimulate or hinder economic success
- Federal and state regulations can be barriers to entry and be unclear with expectations
- Processing costs for independent processors, can make it difficult to compete with large scale companies

Impacts

- Economy: “By the end of the 1990s, large [processing facilities] accounted for most of the meat processed in the United States” (Kandel & Prrado, 2005); animal production and meat processing “industries combined supplied 3.8 percent of [Iowa’s] jobs and accounted for 3.7 percent of the state GDP.” (Swenson, 2011); “four companies process 85 percent of all the beef in the United States: Tyson Foods, Cargill, JBS S.A., and Smithfield Foods” (Hawley & Baldwin, 2020).
- Education: Consumers are more influenced by wellness when purchasing food, specifically toward meat safety (Liana, Radam, & Rusli Yacob, 2010).
- Environment: “Poultry transport to the slaughterhouse is one of the critical factors affecting animal welfare, quality and meat hygiene.” This finding supports the need for more small-scale, independent processors (Mancinelli, Dal Bosco, Mattioli, Ranucci, & Catellini, 2018).
- Equity: “Small scale meat processors [were] much more visible in Iowa” than in previous decades (Thiboumery, 2009).
- Wellness: “There were 115 meat or poultry processing facilities with COVID-19 cases, including 4,913 workers with diagnosed COVID-19” (Center for Disease Control and Prevention, 2020).
- Policy/Economy: Small meat plants in Iowa have decreased by 64% since 1965 (North Central Regional Center for Rural Development, 2008).
- Equity: Inspection regulations can limit the number of independent processor facilities in a geographic region: “There are notable absences of state-inspected operations . . . in the state’s southernmost counties . . . [and] northwest quadrant” (Swenson, 2011).

Economy

The demand for local food has increased in recent years, allowing for enhanced communication between producers, processors and consumers. Farmer and customer commitment are both significant for the economic success of independent processors. This shift has created changes in purchasing behaviors and preferences and has provided a platform for small-scale processors to respond to these evolving consumer demands.

CASE STUDY: ACRE STATION MEAT FARM (Niche Meat Processors Assistance Network, n.d.).

Acre Station Meat Farm operates out of Pinetown, North Carolina, and processes 80 hogs or 7 cattle per day and up to 20 goats and lambs per month; it is USDA inspected. Acre Station works with local and regional independent and small-scale producers doing custom slaughtering and has become “a ‘go-to’ processor for a number of farmers participating in direct markets.” One challenge this business has faced since opening in 1978 is the “gradual disappearance of their customer base. The core customer for their on-site retail grocery stores is an older, rural consumer.” The article goes on to explain that modern food intake suggestions from healthcare providers and declining interest among younger consumers have contributed to this decline. Acre Station is “actively exploring opportunities to access new markets and to create a new niche for themselves.”

Education

Independent processors must not only comply with federal and state regulations but must also meet specific training and certification requirements, including food safety and handling. Multiple associations and organizations focus on food processing, providing educational expertise and technical assistance for small-scale or beginning processing

businesses. In addition, coalitions, conferences and various initiatives that are focused on food processing play a key role in building awareness for specific local and regional markets.

[CASE STUDY: NORTH CAROLINA: NC CHOICES, FARMHAND FOODS AND THE CAROLINA MEAT CONFERENCE](#) (Gwin, Thibourner, & Stillman, 2013).

This case study discusses North Carolina's efforts to bring local meat to the local market, which has resulted in increased awareness, support and technical assistance for small-scale processors in the state. This work has been led by NC Choices, an initiative out of the Center for Environmental Farming Systems at North Carolina State. At their start-up, they began helping Acre Station Meat Farm do fee-for-service processing and write grants for new equipment. Farmhand Foods is a stand-alone business that "aggregate[s], distribute[s], and market[s] local, pasture-raised meats." Two processing facilities that source from 25 farmers distribute to more than 30 local restaurants, specialty stores and the largest natural foods cooperative in the state.

The Carolina Meat Conference in March 2011 brought together more than "300 farmers, processors, marketers, consumers, and regulators for sessions covering production, farmer-processor collaboration, marketing, meat cutting, animal handling, and on-farm poultry slaughter." Their work has expanded to offering technical assistance and business development education to other processors and businesses in the meat industry throughout the state. A large part of this initiative's success is attributed to having "engaged partners" in public and private sectors.

Environment

A multitude of environmental factors impact the food processing sector, including production methods, equipment and technology used in processing, as well as nutritional content, food quality and waste. Additionally, these factors can also influence consumer purchasing habits and preferences. Independent processors have the opportunity to enhance nutritional quality of products through minimizing food travel distances, heightening animal welfare practices and utilizing less energy than large-scale facilities.

[CASE STUDY: NIMAN RANCH, A NATURAL MEAT PROCESSOR](#) (Brown, 2000).

Niman Ranch is located in the San Francisco Bay area and supplies gourmet beef, pork and lamb to local grocers and restaurants. They pride themselves on quality, natural practices and animal welfare, "delineating the industry's dependence on chemicals, growth hormones, and feed additives." They purchase solely from three local family farms whose values align with their own. "Then it contracts slaughtering facilities to process the animals and monitors the slaughtering facilities with their own staff to make sure they are killed humanely."

Equity

Independent processors support farmers with diverse backgrounds and socioeconomic status to process product with minimal quotas and increased flexibility. Historical and systemic changes to the processing and packaging industries has fostered competitive atmospheres, creating shifts in production, upscaling operations, and adopting rigid product standards (Kandel & Prado, 2005). These changes to the industry have had adverse effects for both processors and producers, where independent processors serve a vital role in the supply chain by providing access to equipment and necessary infrastructure for small scale producers to run profitable businesses.

[CASE STUDY: ISLAND GROWN FARMERS COOPERATIVE, NORTHWEST WASHINGTON](#) (Gwin, Thibourner, & Stillman, 2013); (Robles, Harper, Needhama, & Salmon Valley Meat Processing, 2014).

Island Grown Farmers Cooperative (IGFC) is the first USDA-inspected mobile slaughter unit in the nation. It was started in 1996 when a group of farmers were no longer able to transport their livestock to the mainland to be processed. They developed a mobile processing unit for red meat through USDA grant funding and donations from their community. Now, the IGFC travels to farms to provide on-site processing services as well as marketing services. They use a scheduling system to ensure that farmers in the area will be able to utilize the services at a consistent time. "Central to the co-op's success is that its members have very few options for inspected slaughter and processing," and that they are mobile.

Wellness

Consumers have developed greater interest in methods of food production and processing, placing high value in locally sourced and processed products in relatively recent years. Independent processing facilities allow for increased processing options for farmers and can potentially decrease transportation costs and food miles for the product, supporting higher quality and nutritional value.

[WELLNESS: KENTUCKY STATE UNIVERSITY FRUIT AND VEGETABLE MOBILE PROCESSING UNIT](#) (Kentucky State University Cooperative Extension Program, 2017; Kentucky State University Campus News, 2015).

The Fruit and Vegetable Processing Unit at Kansas State University was completed in 2015 and was the first of its kind in the United States. The unit is fully certified for farmers to process their produce and sell into local businesses such as grocery stores and farmers markets. It provides local and regional farmers with high-quality systems and equipment to process their produce in a more efficient and simple manner. This project also supports small, local producers through marketing and outreach assistance.

Policy

Policy and regulations play an important role in the processing industry, specifically in the meat industry. Meat processors deal with various levels of inspections: federal, state, retail-exempt and custom exempt. These inspections can have major economic impacts on small-scale and independent processors, such as limiting sales both geographically and to whom they are allowed to sell. However, independent processors are an integral piece of the supply chain, specifically benefiting small-scale producers that may be displaced geographically or do not meet regulation standards or quotas.

[CASE STUDY: MONTANA—REGULATORY CONSISTENCY AND CLARITY](#) (Gwin, Thibournery, & Stillman, 2013).

This case study discusses inconsistency in policy between state and local regulators. Local level regulations are authorized and managed through the Montana Department of Health, but state-inspected processing is regulated through the Department of Livestock. These regulations are written at the state level but are "interpreted at the local level by county 'sanitarians'" who have minimal training in food and safety; "as a result, they vary widely in their willingness to allow local meat and poultry products into the market" (Gwin, Thibournery, & Stillman, 2013). This confusion resulted in the State Department of Health and Human Services commissioning state-level inspectors to meet quarterly to clarify the regulations and fill in the gaps. The state also prioritized legal training for staff within the agencies enforcing these rules.

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