DOUGLAS COUNTY, KS

FOOD SYSTEM ASSESSMENT

FULL REPORT | 2017

Prepared for the Douglas County Food Policy Council by
Barb LaClair, LaClair Consulting
Helen Schnoes, Douglas County Food Systems Coordinator

Each of us has a part to play in our local food system.

Read on to see what yours may be.

Sections included:

Introduction | Production | Infrastructure | Retail | Access & Food Insecurity | Consumption | Waste & Recovery

Learn more about the Food Policy Council and efforts to support our local food system, including downloadable, easy-access data included in this report at www.douglascountyks.org/fpc

CONTACT US:

email: dcfpc@douglascountyks.org

facebook: lawrenceanddouglascountysustainability

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INTRODUCTION

INTRODUCTION

Knowing our Local Food System

Our local food system includes how we produce, buy, eat, and dispose of food in Douglas County. The journey our food takes from field to plate is influenced by ecosystems, education, culture, funding, research, and public policies. Working together to develop our local food system builds economic vitality, wellness, ecological resilience, and equity in our community. This work includes strengthening connections between area producers and consumers to keep food dollars local.

Each of us has a part to play in our local food system.

We are all consumers in the food system. Everyone must eat, and most of us purchase at least some of the food that we eat. While some of that food may be purchased directly from the farmer who raised or grew it, most purchased foods have passed through the hands of multiple processors, distributors and retailers before arriving on the plate of the eventual consumer.

In addition to being consumers, many community members are also involved in other sectors of the food system such as food production, processing, distribution or retail sales. Beyond the direct connections as consumers or through employment in food-related jobs, community members influence the local food system in many other ways as well. Through our food purchasing choices, we help to drive the selections of foods available in local retail outlets. Our purchases of locally-produced foods help to support local farmers and encourage others to engage as beginning farmers. Our increasing demand for healthy food options paves the way for policy changes in workplaces and public venues to ensure that healthy food options are consistently available. And, the money that we spend on food makes a significant contribution to the local economy.

Food is at the center of our community's culture, and plays a vital role in our family gatherings and celebrations. Access to nutritious, wholesome food is essential to our health and well-being. Our food system and the local food environment are integral components of our community. By studying and learning about the local food system, we can identify opportunities to work together to create a stronger and more robust local food system that serves the needs of all members of the community.

OVERVIEW OF THIS REPORT

This report provides an update to the first Douglas County food system assessment, which was published in 2010.[i] This assessment provides updated data and introduces some aspects of the community food system that were not explored fully in the first report. The Sections in this report are organized around the sectors in our food system:

- Production
- Infrastructure (Transporting, Processing, Packaging)
- Retail
- Food Access & Food Insecurity

- Consumption
- Waste

WHAT INFLUENCES A LOCAL FOOD SYSTEM?

The primary actors and stages in our local food system (often shortened as "field to plate") make decisions based upon a complex array of external influences. We highlight some of these because understanding them helps put our subsequent chapters in local context. That understanding also helps to inform and guide future community actions to support our local food system. Though not an exhaustive list, influences discussed here include:

- Ecosystems
- Public policies
- Funding & Research
- Culture & Education

We delve more deeply into ecosystems and public policies here, with some brief notes concerning the latter four influences.

ECOSYSTEMS

Kansas, located in the center of the continent, experiences a varied climate. The first food system assessment established a solid framework for understanding the robust base of natural resources in Douglas County—and their importance to supporting both an urban population base and retaining a vibrant rural agricultural landscape.

An **ecosystem** is a **system** made up of an ecological **community of living things** interacting with their **environment** (air, water, soil) especially under natural conditions

Source: Merriam-Webster dictionary

WATER

Water is vital to all forms of life, and as such, is an important natural resource. Humans need access to unpolluted drinking water, and water is also essential for crops and livestock. In Western Kansas, access to sufficient quantities of water has become increasingly problematic in recent years as current rates of water use have consistently exceeded the replenishment rates of the aquifers from which the water supply is drawn. In other locations in Kansas, water quality has become a concern as surface and ground waters have become polluted and unsafe for human consumption. In 2012, a severe drought impacted life, business, and ecosystems across the state. Around the same time, the City of Lawrence created a

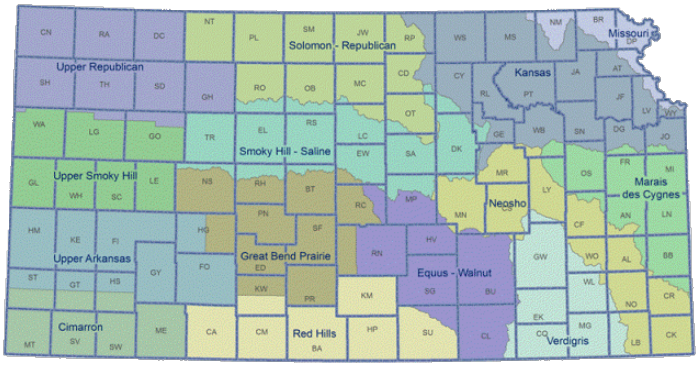

Figure 1: Map of Kansas Watershed Regional Advisory Councils; http://www.kwo.org/RACs/map_Planning_Areas_v6.2_half_HG_121614_tr.gif

"Water Resources and Management" section in their Horizon 2020 comprehensive plan, including policies that focused on water quality, flooding, and recreation (an updated comprehensive plan is in development as of this publication's release). In 2014, the Kansas Water Office updated the Kansas Water Plan, setting goals and priorities for water management.[ii]

Relevant goals in the Kansas Water Plan include:

- Ensuring a reliable water supply for citizens
- Securing, protecting, and restoring reservoirs, to reduce potential impacts of severe drought and mitigate the impact of sedimentation and nutrient accumulation
- Improving water quality, to mitigate negative impacts upon public drinking water, agriculture, recreation, and fish consumption from waterways
- Maintaining local water infrastructure, to prevent public health threats from improper wastewater treatment or dam/levee failure due to disrepair
- Reducing vulnerability to extreme events, to prepare for the impacts of climatechange

To support the Kansas Water Vision, fourteen Regional Advisory Committees act at the watershed level. Douglas County is part of two watersheds, the Kansas and Marais des Cygnes[iii].

WATER QUANTITY

Across Kansas, 85 percent of all water use is for crop irrigation systems,[iv] with the heaviest use in the arid western portions of the state. In comparison to the arid climate and scant rainfall of Western Kansas, Eastern Kansas receives more precipitation and there is less need for crop irrigation. During the 2012 growing season, only 2.5% of the cropland in Douglas County was irrigated (map below). However, increased future demand due to a drought could result in the need for water use management. In addition, sedimentation may threaten both water storage capacity and water quality. By 2009, Clinton Lake had lost 8% of its capacity since construction in 1977; some reservoirs in Kansas are experiencing a much greater rate of capacity loss.[v]

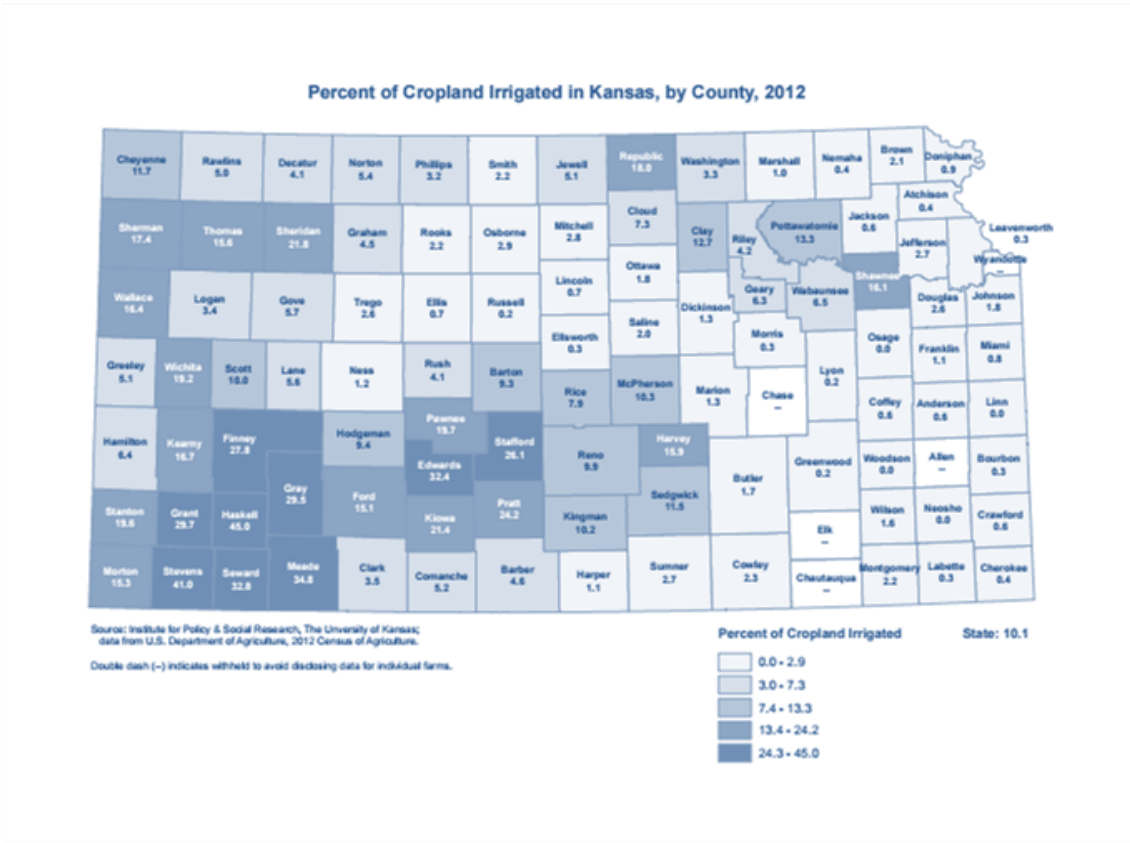

Figure 2: Cropland Irrigation Rates. Source: Kansas Statistical Abstract Enhanced Online Edition, 2014

As identified in the first food system assessment, municipal uses remain the leading use type of our county's water.

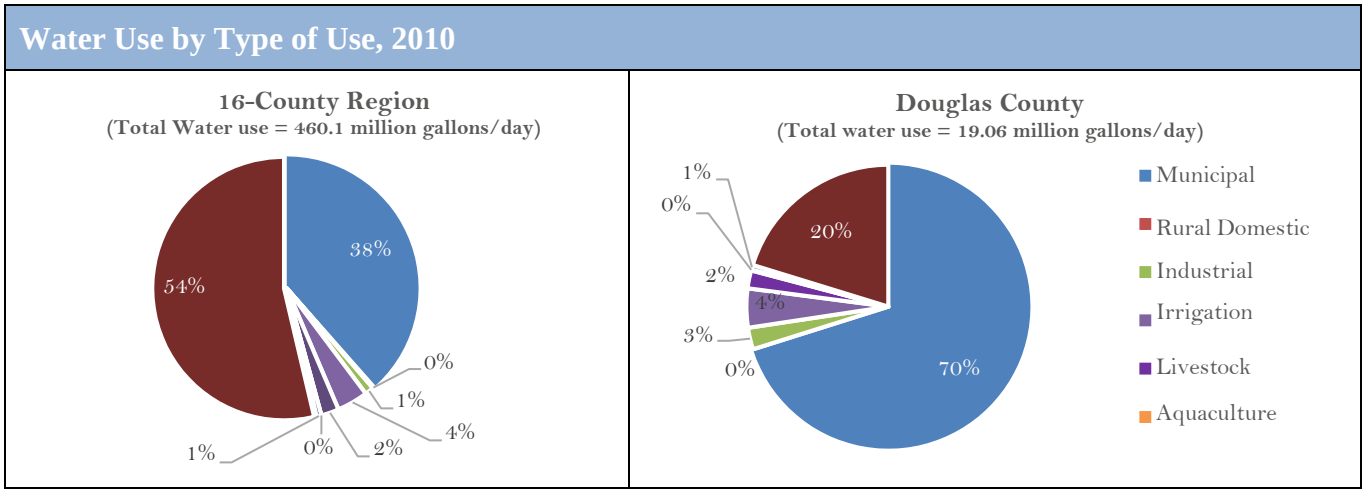

Figure 3: Water Use by Type of Use. Source: USGS Water Use Data

The scale of water use for electricity production is one of the greatest differences between Douglas County and the water use pattern across the 16-county region. Water consumed in the production of electricity includes cooling towers at major power plants. In the 16-county region, we have several plants owned by the power company Westar. The Jeffrey Energy Center, in Pottawatomie County, is one of the largest merchant power plants west of the Mississippi. The Lawrence Energy Center, in Douglas County, is the third-largest plant in Kansas.

WATER QUALITY

Water quality has also become a concern in some locations in Kansas, as pollution and contaminants have resulted in unsafe drinking water, fish consumption advisories, or waters that are not safe for swimming or recreational use. In Kansas, most public water systems provide high-quality drinking water that is safe for consumption, but a few struggle with contaminant levels. Organizations like Kansas Watershed Restoration and Preservation Strategy, or WRAPS, work on a watershed-basis with stakeholders to implement restoration projects

The most common contaminant encountered in Kansas water is nitrates, which is primarily attributed to run-off from fertilizers used in agriculture or landscaping, and animal wastes from confined feeding operations.[vi] The community of Hiawatha in Brown County has struggled with high levels of nitrates in the public drinking water supply, and has advised that pregnant women and babies not drink it.[vii]

Pollution of surface waters in lakes, streams and rivers may also make the fish that live in the waters unsafe for human consumption. Mercury contamination is the most common concern -- coal-fired power plants are the largest source of mercury pollution.[viii] The Kansas Department of Wildlife and Parks and Tourism (KDWPT) has issued a statewide advisory recommending that the general population should restrict consumption of largemouth, smallmouth and spotted bass to one meal per week because of mercury. Sensitive populations (women who are pregnant, may become pregnant, are nursing, or children under the age of 18) are advised to restrict consumption of bass to not more than one meal per month, and to restrict consumption of all other types of locally-caught fish to not more than one meal per week.[ix]

In addition to the statewide advisory related to mercury contamination, additional advisories are sometimes issued due to the presence of pollutants in specific waterways. In Douglas County, KDWPT recommends that fish or aquatic species caught in the Kansas River between Lawrence (below Bowersock Dam) downstream to Eudora at

the confluence of the Wakarusa River not be eaten because of the presence of polychlorinated biphenyls (PCBs) in the water. In Johnson County, KDWP recommends against eating any fish taken from Antioch Park Lake South in Overland Park because of the presence of the pesticides dieldrin, heptachlor epoxide, chlordane and dichlorophenyltrichloroethanes (DDTs). Currently, there is no systemic collection of data concerning fish consumption from the Kansas River, which limits our ability to understand the impact these health warnings may have on residents who catch river fish for food.[x]

For Douglas County residents and others in the region, fishing at Clinton Lake not only provides a recreational activity, but may also provide a food source. Fishing licenses are obtained through the KDWPT, who also asserts regulations on the number of fish caught per day and (at times) the fish length.[xi] In 2015, the KDWP stocked the lake with over 4 million walleye fry and over 100,000 largemouth bass fry.[xii] Other fish in the lake include Blue Catfish, Crappie, White Bass, and Wipers. Fishing also occurs at Lone Star Lake.

SOILS

Soil is also a vital resource for the success of agriculture and food production. Our county has over 8,000 acres of high-quality Class I or II soils[xiii]. Long-range planners in Douglas County have taken some steps to protect high quality soils and limit industrial development in such areas. The Environment Chapter of the Horizon 2020 plan identified agricultural soil as a key land resource and management issue:

> *"High Quality Agricultural Land is recognized as having exceptional quality and fertility, and in Douglas County is generally described as having Capability Class (non-irrigated) I and II soils as defined by the National Resources Conservation Service. This High Quality Agricultural Land is a finite resource that is important to the regional economy. This land requires less intervention to produce high yields of crops with high nutrition and should be protected, preferably for food production." (Updated Comprehensive Plan in development at time of publication.)*

As part of the policy recommendations, protection of high-quality agricultural land in Douglas County has begun to be incorporated into planning through a number of activities in recent years:

- Protection of high-quality agricultural land is a key assumption in sector planning
- An inventory for tracking the loss of this land has been created
- Encouragement and development of policies to support agritourism and local/regional food system sustainability

Other rural development, such as residential expansion, can impact the preservation of these soils. As one of the three fastest urbanizing growth counties in Kansas, how we manage protecting our soil in the face of shifting population and economic demographics will determine both the rural character and natural resource base of the community for future generations.

LAND – ACCESS AND USE

As populations shift and economic opportunities evolve, the costs of farmland also change. Over the past decade or so, real estate values have been rising in Kansas. Irrigated cropland growth has outpaced non-irrigated crop land and pasture. In Douglas County, land holds both agricultural and development values. The development pressure for industry, commercial, and residential uses impacts the lands around the Lawrence, Baldwin City, and Eudora.

An analysis of 2014 farmland rental cost and land values data illustrates the situation in Douglas County in comparison to the NE Kansas region of 16 counties. While Douglas County ranks in the middle for non-irrigated cropland cash rents, for pasture it has one of the highest rates. Looking at land values, Douglas County shows the

second-highest rates for both non-irrigated cropland and pasture—only Miami County shows higher values. On both types of land, purchase prices in Douglas County are around twice the lowest rates.

	Cash Rents		Land Values	
	Non-irrigated cropland	Pasture	Non-irrigated	Pasture
DG County	$61	$25	$6,640	$4,003
Regional Average	$82	$23	$5,097	$3,075
Lowest	$51	$17	$3,358	$2,025
Highest	$160	$38	$7,319	$4,413
DG Co Rank in Region	7th Highest of 13	3rd Highest of 13	2nd Highest of 13	2nd Highest of 13

Figure 4: Land Rent and Purchase Values. Data Sources - NASS KS Field Office, K-State Department of Ag. Economics[xiv]

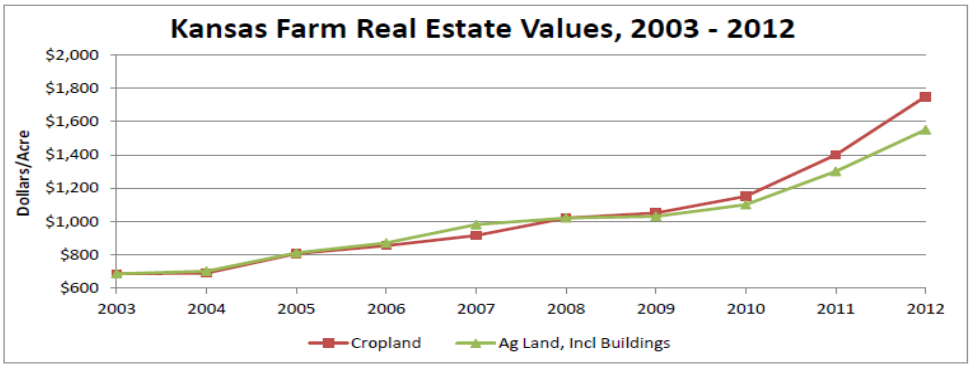

Figure 5: Agricultural Land Values and Cash Rents Trends. Source: Kansas Agricultural Statistics.

Of course, the cash rents and land values vary by context and the unique characteristics of the property. Additional local data may be necessary to better understand the dynamics at play in Douglas County—particularly in relation to long-range planning, urban growth, and development pressures. However, for protecting resources and preserving agricultural heritage and production, the question of land price and availability will be important to understand. Land prices and farmers' ability to access land, especially beginning farmers, may indicate that supporting farming and a local food system means working across county lines to reduce barriers and support beginning farmers. It may also mean that beginning farmers wanting to serve Douglas County consumers will need to look to neighboring counties for land.

LAND CONSERVATION: EASEMENTS

Conservation easements allow for the protection of land as open space, agriculture, and wildlife habitat for generations to come. In a conservation easement, the "development rights"—or ability to build upon the land—are sold to an outside party who maintains this value of the land. Even after sale of the land, the development rights remain with the third party.

One organization that helps land owners enter into this type of arrangement to protect land is the Kansas Land Trust.[xv] Across the state, though principally in Northeast Kansas, the group has preserved over 38,000 acres of land. In Douglas County, over 450 acres of agricultural land has been permanently preserved in conservation easements.

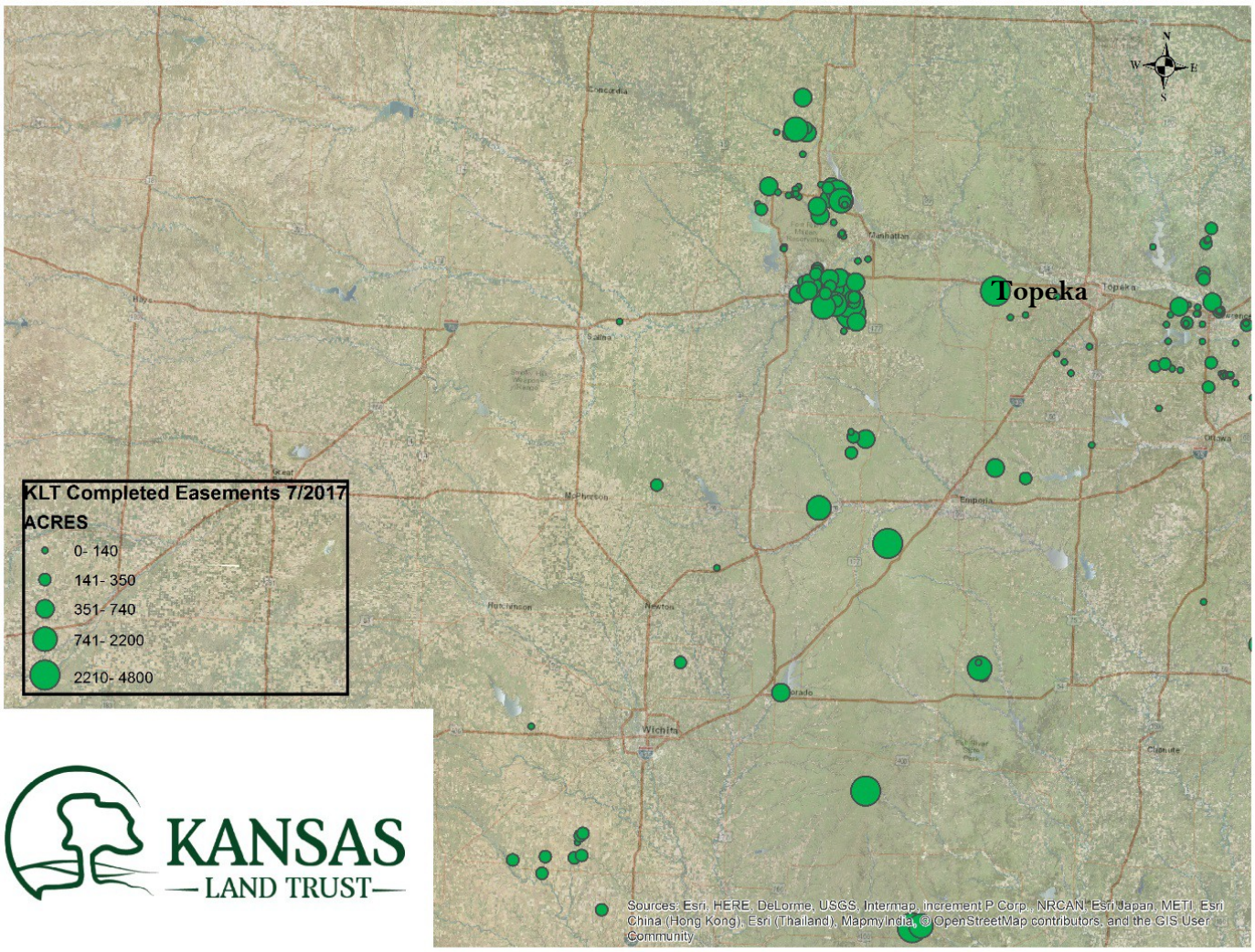

Figure 6: Kansas Land Trust Conservation Easements, http://www.klt.org

CLIMATE

Climate change has already begun to impact agricultural dynamics in Kansas. Potential changes will include:

- More intense spring precipitation, less steady precipitation at other times
- Warmer winters that don't kill pests
- New pests from other areas
- Altered soil structures
- Swings in temperature outside of regularly observed seasonal patterns
- Higher temperature highs

The 2014 National Climate Assessment identified key impacts upon the Great Plains region, including Kansas: "Changes to crop growth cycles due to warming winters and alterations in the timing and magnitude of rainfall events have already been observed; as these trends continue, they will require new agriculture and livestock management practices." [xvi]

PUBLIC POLICIES

Food production, distribution, and procurement is a global system impacted by:

- international trade agreements,
- the federal Farm Bill,
- and rulemaking by federal agencies like the U.S. Department of Agriculture.

At the Federal level, the Farm Bill is sometimes described as the "swiss army knife" of federal legislation, because it includes programs for rural development, conservation, crop insurance, trade, research, nutrition (SNAP, or food stamps) beginning farmers and ranchers, organic certification, and local food systems.

At the state level, the state of Kansas oversees many aspects of food policy and public safety by regulating the production and sale of food products in the state. The Kansas Department of Agriculture conducts food safety inspections of restaurants, inspects meat and poultry processing facilities, regulates retail food sales at farmers markets, and provides advocacy and marketing on behalf of Kansas producers. In 2017, a legislative Local Food and Farm Task Force issued their second report, drawing upon 2 years of listening around the state. The report emphasized the need to increase support for local food production and specialty crops. Specific recommendations included in the report were[xvii]:

- Form a Local Food and Farm Advisory Board
- Create a Local Food Systems Coordinator position within the Kansas Department of Agriculture
- Establish a Kansas Wine Council
- Support Specialty Crop positions with K-State Research and Extension
- Establish Kansas as a Specialty Crop leader (supported by .01 cent of current sales taxes on food)
- Lower state sales tax rate on food to 5.3%

Figure 7. Public Health Law Center, *Drafting Effective Policies*, http://www.publichealthlawcenter.org/sites/default/files/resources/Drafting%20Effective%20Policies.pdf

WHAT CAN LOCAL GOVERNMENTS DO?

While many of the policies that influence our food system are decided by the federal and state government agencies, significant opportunity exists for local governments to establish public policies that increase access to healthy, affordable food. Local governments play a pivotal role in ensuring that community members have access to healthy food through local policies. Under Kansas law, local governments have the authority to implement a variety of policy levers to increase access to healthy food and improve health within their communities.[xviii] Even though local governments do not have a "Department of Food" many of the decisions made by local governments have a direct impact on how and where food is produced and consumed by citizens. Some examples of how local policy might influence the local food system include:

- Change zoning and tax laws to make it easier to create new grocery stores, farmers' markets, and community gardens.
- Establish public procurement policies so that a % of their food purchases are made locally.
- Engage with land use and long-range comprehensive planning to ensure that food is recognized as a key community asset.
- Establish incentives to help existing stores increase the number and variety of healthy products they sell.
- Create food policy councils to give residents a voice in how best to improve access to healthy food.

Douglas County has recognized the impact that food has on public well-being and the local economy. In 2010, the Board of County Commissioners established the Douglas County Food Policy Council. The Douglas County Food Policy Council is body of 23 stakeholders from across the local food system, appointed by the Douglas County and City of Lawrence Commissioners. The Council exists to advise these elected officials on food-related policy issues and provide a forum for the community. The work of the DCFPC complements numerous other efforts throughout Douglas County that help build a stronger local food system.

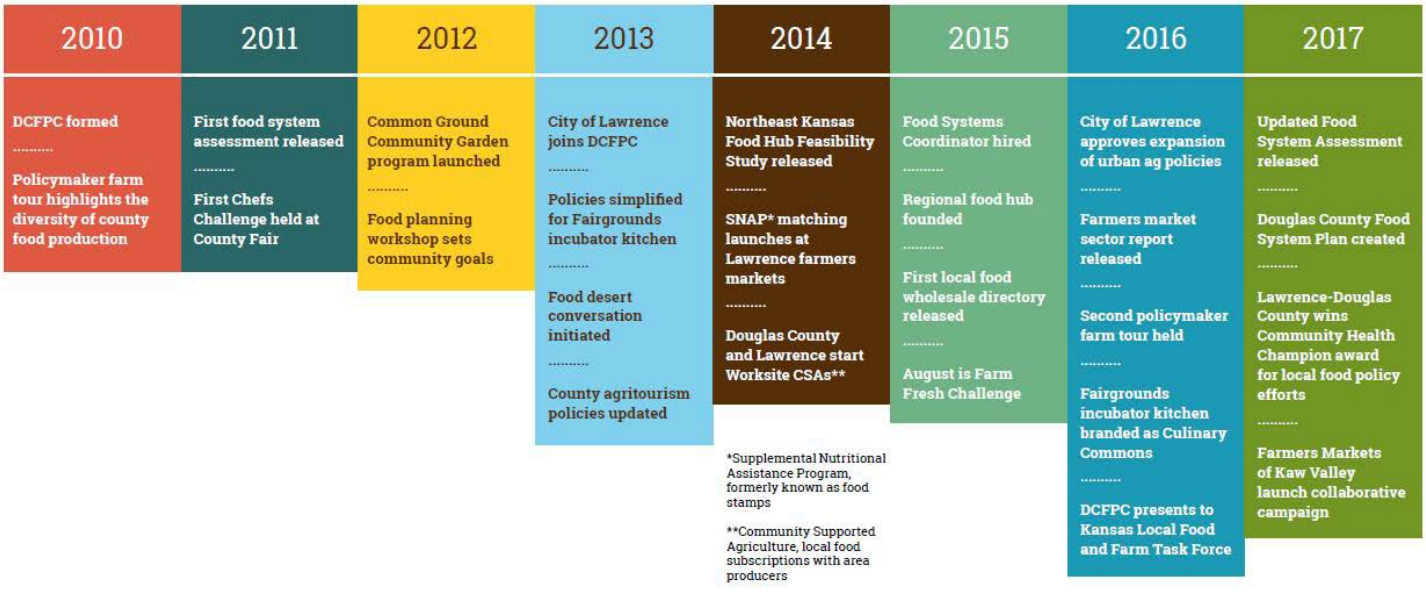

Figure 8: Summary of Douglas County Food Policy Council Milestones

INVESTMENT & RESEARCH

Leveraging Local Funding: The Douglas County Food Policy Council, an advisory body to the City and County Commissions, receives a budget of $6,800 per year and professional staff support from county employees. Since its founding in 2010, the group has earned national recognition for its work to foster collaboration and advance food systems development.

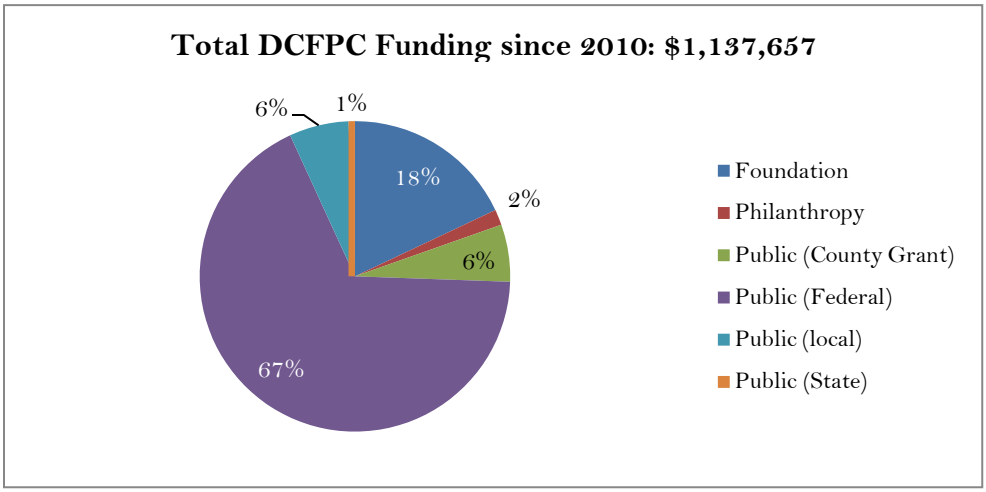

Figure 9: Funding Secured by the Douglas County Food Policy Council, 2010-2016

The above graph does not reflect funding directly applied for and received by community partners pursuing distinct efforts to further programming, technical assistance, and other activities to support the local food system. (Such as Farm to School grants received by the Lawrence-Douglas County Health Department and USD497.) Staff time for the Lawrence-Douglas County Sustainability Director also not reflected.

In 2015, 60% of the **USDA Value-Added Producer Grants** received by Kansas farms went to Douglas County-based agricultural businesses.

CENTRAL GRAZING COMPANY	Fresh Farm HQ	White Tail Run Winery LLC
$160,000	***$244,943***	***$20,000***
Funds used to expand Central Grazing Company's distribution to new markets.	Funds used to finance business start-up costs for a Regional Food Hub to serve the Kansas City metropolitan area. (Note: this funding is included in the pie chart above given support role played by DCFPC and staff.)	Funds used to increase production of wines by 50 percent, and to expand both the winery's markets.
https://centralgrazingcompany.com/	https://fresh-farm-hq.myshopify.com/	http://www.whitetailrunwinery.com/

Figure 10: Value-Added Producer Grants to Douglas County Entities

E-communities: Both Douglas County and the City of Lawrence applied for and have been selected to partner with NetWork Kansas as e-communities. Under this program, communities cultivate an entrepreneurial

environment by identifying and developing resources to help local entrepreneurs start or grow businesses. Matching e-community funds are used to leverage local funding resources[xix]. New low-interest loans through the e-community program have helped Douglas County entrepreneurs grow their food businesses, loaning over $60,000 since 2012.

Universities: Lawrence is a college town, home to the University of Kansas and Haskell Indian Nations University. Southern Douglas County is home to Baker University in Baldwin City. The county also has strong connections to other agricultural food-related programs housed at Kansas State University in Manhattan. Collaborations and partnerships with area universities have been mutually beneficial, allowing the community to benefit from the technical expertise and skills of university faculty and students, and allowing the students and faculty access to practical experience in a community setting. Some examples where University representatives have engaged in food systems work in Douglas County include:

- Evaluation for Double Up Food Bucks
- Evaluation for the Community Health Plan
- Douglas County Natural Resources Inventory
- Perennial Agriculture Project, in collaboration with the Land Institute and Malone Land Foundation

***Social Determinants of Health**: access to power, money, and resources and the conditions of daily life that affect health and well being for groups of people (Solar, Irwin, WHO 2010).*

***Health Equity**: the attainment of the highest level of health for all people. Achieving health equity requires valuing everyone equally with focused and ongoing societal efforts to address avoidable inequalities, historical and contemporary injustices, and the elimination of health and health care disparities (Department of Health and Human Services)*

CULTURE & EDUCATION

Food comprises a core component of how we celebrate together and learn about cultural heritage. It takes a central stage in the habits we form to fill our days, from the mundane to the special treat to the holiday feast. The culture of food in Lawrence and Douglas County reflects the diversity of its residents. It can be observed in a range of activities both formal and informal, like a family's 4th of July traditional grill-out or the church potluck, the Douglas County Fair, the Haskell Indian Art Market, or a multi-course Chef's Table dinner. Clubs and organizations, such as 4-H or the Growing Food Growing Health program, keep tradition alive and share knowledge. Tours, such as the Kaw Valley Farm Tour and Lawrence Food Garden Tour, expose residents to both urban and rural food production as it exists in our county today.

The food cultures of Kansas residents have changed over time.[xx] Today, a mix of ethnic traditions and culinary styles allow Douglas County residents to sample a diversity of food cultures—some traditional, some adapted and re-imagined for a new context. Food can often serve as a starting point for learning more about another's culture, or the history of a place.

Our local food culture is evidenced and reflected in a multitude of ways throughout the community. Several examples are highlighted here:

Food, Culture and Health: Often, conversations about "health" and "culture" do not have much overlap. But at their very essence, the two are intimately intertwined. How we experience and express our culture shapes our eating habits and our health outcomes. In the last century, we've seen diets and regional/ethnic food traditions merge and transform—and, at times, become marginalized or lost and forgotten by contemporary generations. Time constraints of busy lifestyles and an abundance of cheap and convenient pre-processed or "fast food" options have resulted in fewer meals prepared and eaten at home. Income disparities and high rates of poverty have resulted in substantial numbers of families struggling just to get enough food.

In the field of community health, these underlying social and cultural conditions are called "**social determinants of health**."[xxi] Increasingly, evidence shows that a person's neighborhood environment and economic circumstances exert stronger influence on health outcomes than genetics or medical care. The term "**health equity**" acknowledges that a legacy of discrimination and disenfranchisement has led to conditions in which many low-income and communities of color face disproportionally higher health risks than higher income white residents in the same community.[xxii]

Current work in Douglas County acknowledges this important link between health and culture. The Arts and Cultural Plan identifies that our community's health relates to how inclusive we are to diverse cultures.[xxiii] The Community Health Plan set goals to address poverty and economic opportunity, while improving healthy food access (see more in Access section).[xxiv] More recently, the Health Department has shifted some community projects toward understanding how a focus on health equity can guide local efforts to cultivate a healthy, vibrant community. As such, we feel that it makes sense to explore how food factors into the culture and health of Lawrence and Douglas County.

Promoting a culture of eating to feel good: To accomplish the goal of "improve[ing] food and beverage environments at public venues," LiveWell Lawrence developed the FuelGood program (fuelgoodnow.com) to promote healthy eating by working with institutions to improve nutrition environments. The initiative began in 2015 with the adoption of nutrition standards by the Lawrence Parks and Recreation Department that were used to ensure healthier food options were available in concessions and vending at recreation centers, ball fields, swimming pools and other locations managed by the parks and recreation department. The FuelGood program aims to work with all types of institutional providers of food, from grocery stores to restaurants to worksites, to ensure healthy options are consistently available to the people they serve.

Seed Libraries: Access to seeds represents an important community resource. The Baldwin City Library and Lawrence Public Library have both created seed libraries in recent years. These initiatives demonstrate the mix of education and culture. The KU Center for East Asian Studies donated culturally-relevant seeds to the Lawrence Seed Library[xxv].

Building Gardening and Cooking Skills: Douglas County has an abundance of organizations dedicated to building gardening and cooking skills in the community, such as K-State Research & Extension—Douglas County (who oversees the Master Garden and Master Food Volunteer groups), Sunrise Project, the Community Mercantile Education Fund, and Just Food. K-12 schools have taken a lead with integrating gardens and updating curriculum to engage students in learning about healthy foods.

Supporting new farmers: A range of programs and workshops exist to support new farmers entering the field, or to support existing farmers interested in shifting some of their production practices. The Growing Growers program offers on-farm internships and other educational opportunities. The City of Lawrence Common Ground program has a four-acre Incubator Farm for new farmers to build a market and refine their production practices while finding more permanent land for production. The Kansas Rural Center has provided many opportunities for ranchers to learn about managed grazing practices.

Cultural Arts Planning & Promotion: Recently, the City of Lawrence adopted an Arts and Culture Plan.[xxvi] As part of its Core Vision, the plan identifies a central role of a local food system in understanding the culture of Lawrence. Its vision statement included: "*Our citizens value preserving and enhancing the natural environment for our enjoyment and for future generations. The proximity of rural and agricultural land to the city provides beauty and respite, and we enjoy the economic and health benefits of a robust local food system.*"

In addition, eXplore Lawrence, the city's tourism bureau, highlights the edible offerings of the city as a point of pride to attract visitors. When sharing the "itineraries" of activities that visitors could explore, the list includes:

- **Agri-tourism**, highlighting our Farmers' Markets, the Kaw Valley Farm Tour, and area farms and wineries.
- **Foodies**, directing visitors to favorite restaurants along Mass St. and throughout the city.

Shifting cultural norms and consumer knowledge to support a healthier community food environment is challenging work. Efforts to encourage this type of cultural shift encounter many barriers, including the financial and time limitations that many residents face. Public health announcements and local food promotions can only hold so much sway against the multitude of other food marketing messages and challenges of daily living that influence the food choices and evaluations that folks make each day. The first food system assessment acknowledged this, recognizing the need for capacity building and a rediscovery of skills and strategies to maximize healthy eating, including purchasing patterns, preparation, and preservation (particularly when it comes to local foods grown or procured in-season). The Community Health Plan took a targeted focus on creating supportive environments where healthy food choices are easier to make. A multitude of efforts have been implemented in recent years in Lawrence and Douglas County to begin cultivating a healthier food culture. These include one-time events, special classes, and on-going, evolving campaigns. They focus not on criticizing unhealthy food choices, but on celebrating delicious, nourishing foods.

ECONOMICS OF THE LOCAL FOOD S Y S T E M

As food moves through the local food cycle, from production to eventual consumption and disposal of waste, there are multiple financial transactions that contribute to the local, state and national economies. Farmers purchase seed, supplies, fuel and equipment needed to grow their products. They may sell their farm products to intermediary processors where packaging or the creation of value-added products take place. Those processors must purchase the supplies and equipment needed to process and package the food, and pay their employees. When processing is complete, the product may be sold again to aggregators or wholesale distributors, who in turn will pay for warehouse space, utilities and labor costs necessary to deliver and sell the food to retail outlets where it eventually becomes available for purchase by the consumer. The waste from food processing and post-consumption can be used to create valuable farm inputs if composted—or represent an economic loss to actors throughout the food chain when wasted (as currently happens to about 40% of food in the United States).[xxvii]

At each step along the way, jobs are created and money changes hands and generates activity that contributes to the local economy. Government payments and supports circulate from federal and state to local agencies, businesses, and families. How money enters the local area, how long it circulates between different people and businesses, and at which points in the chain money leaves the local area influence how wealth is generated and economic impact assessed. Understanding these dynamics can help guide local decisions and future planning for a strong local food economy.

FARM AND FOOD EMPLOYMENT

Throughout the entire cycle of the local food system, workers are employed in the various jobs related to growing, processing, distributing, preparing and selling food and food products. Those include jobs on the farm, and non-agricultural jobs in other portions of the food system.

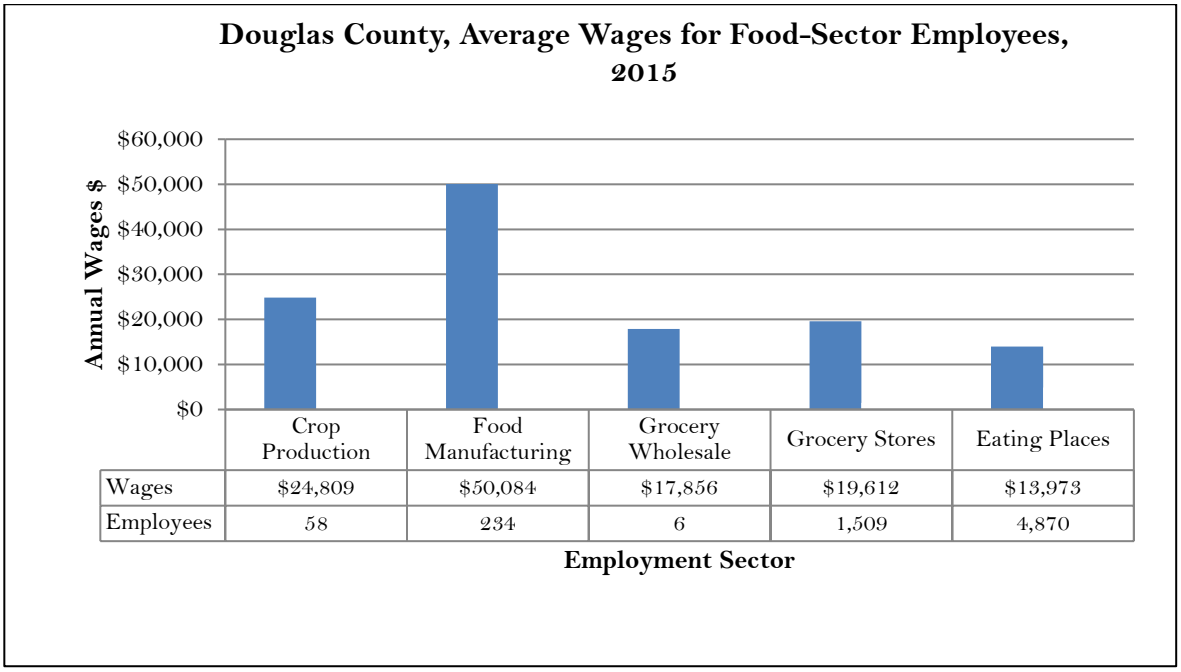

Figure 11: Data Source: U.S. Bureau of Labor Statistics[xxviii]

A significant number of Douglas County residents working in the food system do so at a low take-home wage. Over 5,000 residents work in food services making less than $14,000 on average. The average grocery store wage is slightly higher, just below $20,000; about 1,500 employees work at grocery stores. These wages are drastically lower than the median income for full-time year-round workers in Douglas County ($48,109 for men and $38,573 for women)—suggesting a prevalence of part-time and/or seasonal work. This caveat is important as it may have significant impact on the likelihood that these employees receive benefits like health insurance, retirement savings, and paid time off. These factors also lead to job insecurity.

FARMER'S SHARE OF THE FOOD D O L L A R

By the time food is purchased by the end consumer, the purchase price reflects not only the expenses incurred by the farmer in the course of producing the food, but also expenses incurred and profit retained by each intermediary that handled the food between the farm and consumer. The farmer's share of the retail food purchase price is small, amounting to just 8.6 cents of each dollar spent on food. When a farmer sells through direct markets, he or she receives the full dollar, rather than having it divided among all of the other steps in the food chain. (At the same time, he or she does take on the activities of transportation and retail trade, among others, which have costs that a farmer selling to an intermediary would not have to pay for.) Understanding how a consumer's dollar is divided among different food sectors can help us analyze farm profitability and the job opportunities within the food system infrastructure.

Figure 12: Farmer's Share of the Food Dollar. Source: USDA Economic Research Service, Food Dollar Series, Food Dollar Application (2015). https://data.ers.usda.gov/reports.aspx?ID=9468

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[xviii] Public Health Law Center. *Policy Options for Local Governments in Kansas: Increasing Access to Healthy Foods.* http://www.publichealthlawcenter.org/sites/default/files/resources/Policy%20Options_Access%20to%20Healthy%20Food%201%202015.pdf

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FOOD PRODUCTION

INTRODUCTION

Farms and agricultural producers are the backbone of our local food system; they are the producers that generate the food. Douglas County boasts a rich agricultural history. We have seen changes in the type of products produced on farm and the markets that influence farming decisions. Today, our local producers engage in each of the "Tiers" of the complex food system. This section describes key characteristics of farms in Douglas County and the Northeast Kansas 16-county region (see table 1, next page), and examines trends and changes that have occurred in recent years.

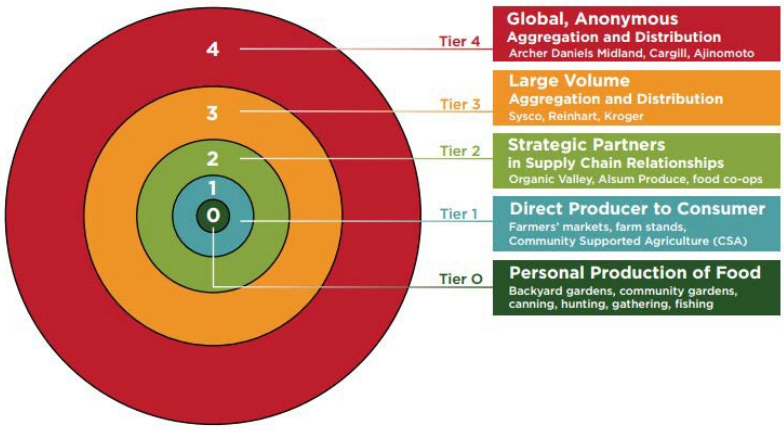

Figure 1: Tiers of the Food System, UW-Madison Center for Integrated Agricultural Systems, August, 2010. www.cias.wisc.edu

FARMS AND LAND IN AGRICULTURE

The 2011 Douglas County food system assessment[i] described dramatic losses in the number of farms in Kansas, declining from a peak of more than 160,000 farms in 1920 to 65,531 in 2007. That loss continued between 2007 and 2012, as nearly 4,000 more farms vanished in the state. While the number of farms has been shrinking, the amount of land in agriculture has remained more stable, with the average size of farms (in acres) increasing. Between 2002 and 2007, Douglas County saw an increase in the number of farms (from 874 to 1,040, Figure 2), and an increase in the amount of land in farms. Over the subsequent 5-year period between 2007 and 2012, Douglas County lost 95 farms (a 9 percent drop), and saw a 5 percent decrease in the total amount of land in farms. The 16-county region lost 1,367 farms, and 321,307 acres of farmland between 2007 and 2012. The average farm size grew slightly. However, these numbers are more stable when looking over the 10 year time period (Table 1).

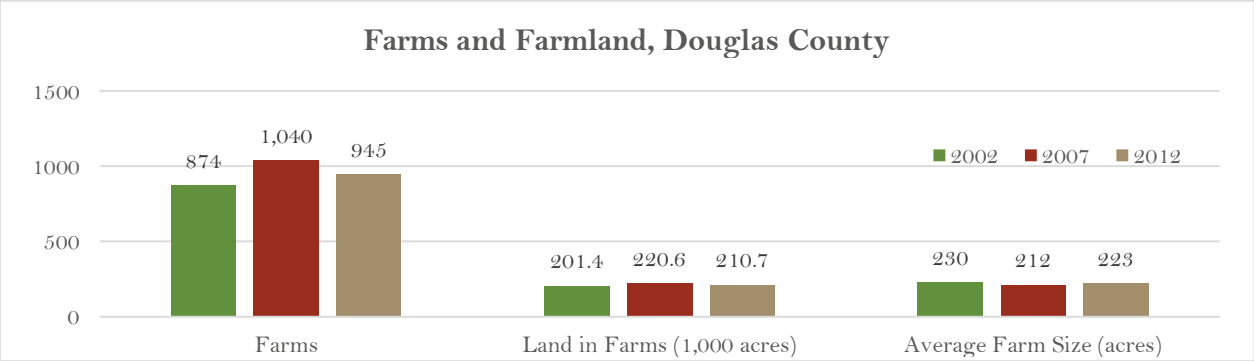

Figure 2: Changes in Farms and Farmland, Census of Agriculture 2002, 2007, and 2012.

Table 1. Farms and Farmland in the Northeast Kansas Region, 2007 to 2012

	Farms			Land in Farms (acres)			Average Size of Farm (acres)		
County	2007	2012	% Change	2007	2012	% Change	2007	2012	% Change
Atchison	711	611	-14	254,101	220,404	-13	357	361	+1
Brown	637	510	-20	346,758	294,888	-15	544	578	+6
Doniphan	573	422	-26	247,815	179,549	-28	432	425	-2
Douglas	1,040	945	-9	220,636	210,676	-5	212	223	+5
Franklin	1,051	1,024	-3	313,546	361,776	+15	298	353	+18
Jackson	1,127	1,054	-6	339,291	329,244	-3	301	312	+4
Jefferson	1,137	996	-12	285,803	243,634	-15	251	245	-2
Johnson	610	571	-6	114,202	99,354	-13	187	174	-7
Leavenworth	1,203	1,133	-6	194,854	184,471	-5	162	163	+1
Miami	1,538	1,305	-15	307,083	295,743	-4	200	227	+14
Nemaha	1,054	903	-14	450,508	382,602	-15	427	424	-1
Osage	1,092	1,014	-7	380,156	442,279	+16	348	436	+25
Pottawatomie	843	890	+6	428,601	409,659	-4	508	460	-9
Shawnee	885	826	-7	206,243	194,274	-6	233	235	+1
Wabaunsee	660	617	-7	470,474	396,309	-16	713	642	-10
Wyandotte	191	164	-14	18,107	12,009	-34	95	73	-23
16-County Region	**14,352**	**12,985**	**-10**	**4,578,178**	**4,256,871**	**-7**	**5,268**	**5,331**	**+1**
Kansas	**65,531**	**61,773**	**-6**	**46,345,827**	**46,137,295**	**0**	**707**	**747**	**+6**

Table 1: Data Source, Census of Agriculture, County Profiles

AGRICULTURAL LAND USE

Across the 16-county region, the predominant use of agricultural lands is for cropland (60.0 percent), followed by pastureland (29.3 percent). Woodlands and other uses make up only a small percentage (10.7 percent) of agricultural lands.

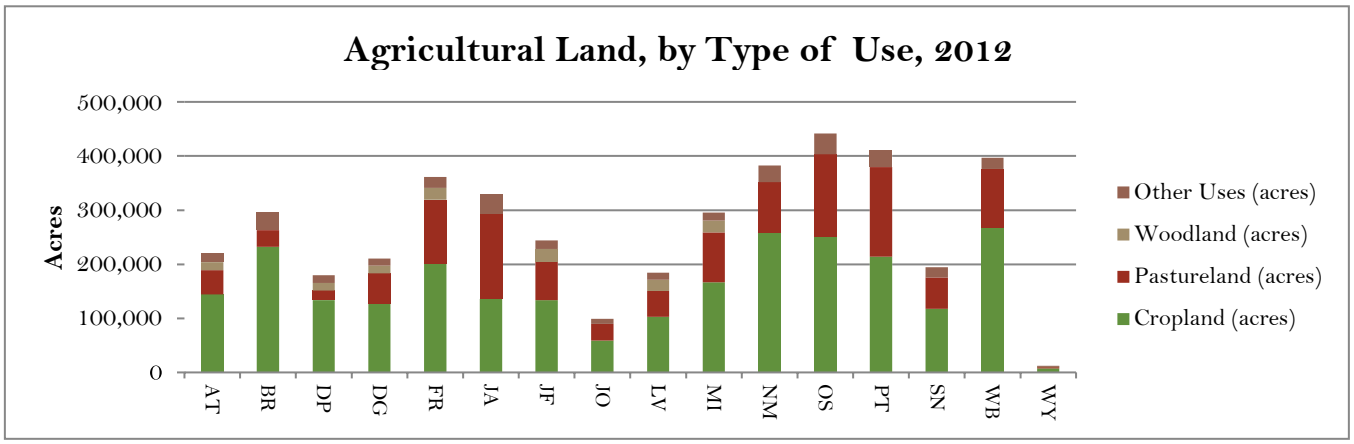

Figure 3: Census of Agriculture, County Profiles

In Douglas County, the total amount of land classified as agricultural, as reported in the Census of Agriculture, decreased by almost 10,000 acres between 2007 and 2012. The largest decrease was in pasture/grazing lands, with other increases in agriculture infrastructure (buildings, ponds, roads). The increase in the "other cropland" category may represent a classification change that would partially offset the decrease in pasture acreage. The

number of acres enrolled in Conservation programs also decreased by 16.4%, although we do see an increase in cropland left idle, used for cover crops, or other soil improvement.[ii]

Douglas County Agricultural Land Use, 2007 vs. 2012

	2007	2012	% Change
Land in Farms, Total	220,636	210,676	-4.5%
Cropland	134,741	127,256	-5.6%
Harvested	118,816	115,686	-2.6%
Pasture/Grazing	7,289	1,098	-84.9%
Other	8,638	10,472	+21.2%
Woodland	14,822	14,201	-4.2%
Pastured	5,489	4,186	-23.7%
Not Pastured	9,333	10,033	+7.5%
Permanent Pasture & Rangeland	58,478	56,071	-4.1%
Land in Buildings, Ponds, Roads, etc.	12,595	13,148	+4.4%
Land enrolled in Conservation programs	8,629	7,211	-16.4%
Cropland idle or used for cover crops or soil improvement – not harvested, pastured or grazed	7,630	8,173	+7.1%

Table 2: Data Source, Census of Agriculture

FARM SIZE: ACRES

In terms of acreage, farms in Eastern Kansas tend to be smaller than those in the Western parts of the state. In 2012, the average farm size in Douglas County was 223 acres, compared to more than 1,000 acres in many Western Kansas counties.[iii] Nearly 40 percent of Douglas County farms are less than 50 acres in size, compared to about 30 percent in the region and less than 20 percent statewide.

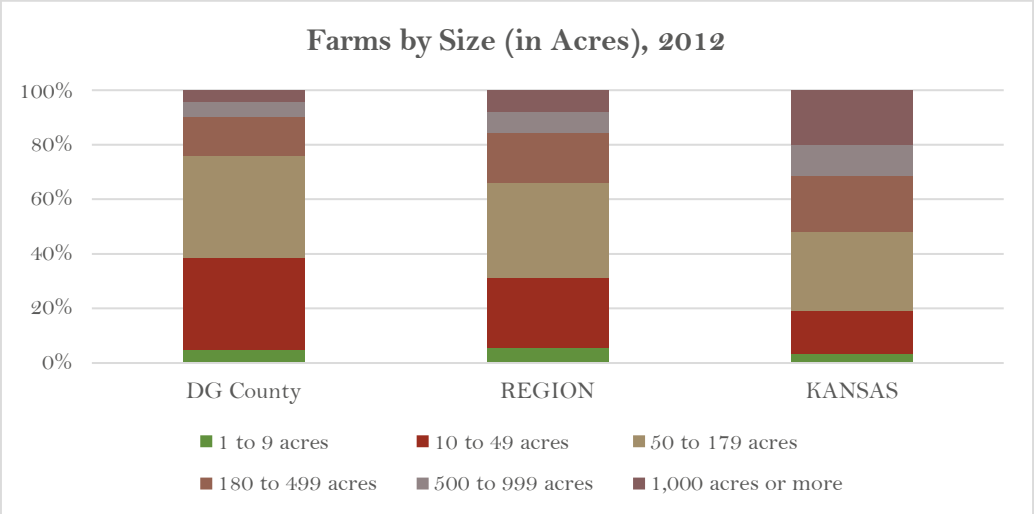

Figure 4: Data Source, Census of Agriculture, 2012

FARM PRODUCTION

Kansas has a strong agricultural heritage, and is recognized as a leader in agricultural production in the United Sates. Kansas is ranked first among the states in production of sorghum, second in wheat production, and third in cattle production and beef processing. The top five agricultural products grown or raised in Kansas in 2015 include:

- Cattle and Calves – 6,250,000 head
- Wheat – 321,900,000 bushels
- Corn – 580,160,000 bushels for grain
- Sorghum – 281,600,000 bushels for grain, 1,575,000 tons for silage
- Soybeans – 148,610,000 bushels

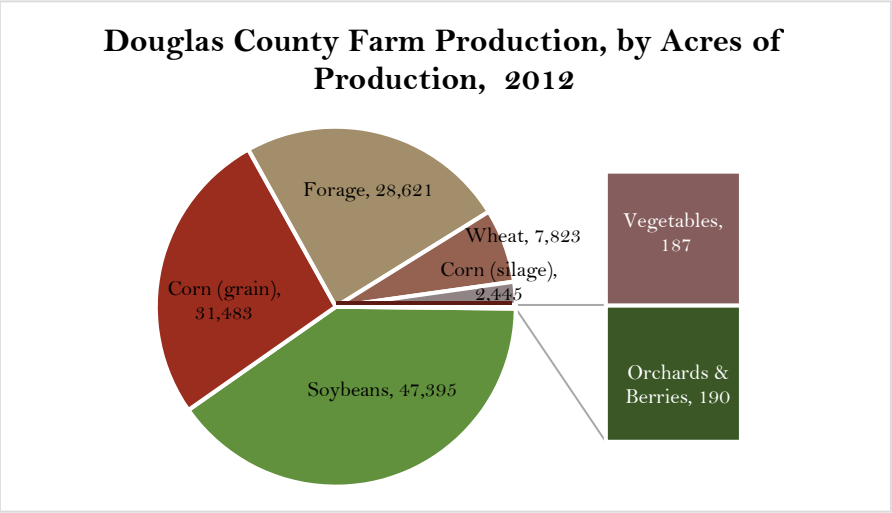

Figure 5: Data Source, Census of Agriculture, 2012

As with the rest of Kansas, the overwhelming majority of cropland acres in Douglas County are utilized for growing traditional commercial crops. From 2007 to 2012, the number of acres dedicated to soybeans and corn for grain both rose, although the total number of bushels harvested in each category decreased. Far less acreage is dedicated to the state's most iconic grain—wheat—whose production area decreased by almost 30%, while the number of bushels harvested increased by nearly 40%.

Animal production represents a smaller component of county agriculture, with marked decreases in recent years in the number of cattle and hogs sold. However, there has been a drastic increase in the number of broilers and meat-type chickens sold, more than doubling from 2007 to 2012. This shift parallels a recent USDA report showing decreases in the market availability of red meat, but increases in poultry availability[iv].

In 2012, only 0.3 percent of the planted acres in Douglas County were being used to grow fruits and vegetables. This represents a continued slow but steady growth in this sector, which in 1997 had nearly negligible share of total acreage as reported in the Census of Agriculture. Those acres in fruit and vegetable production are used to produce a diverse array of foods for human consumption. According to the 2012 Census of Agriculture, Douglas County farmers were growing apples, grapes, peaches, pears, English walnuts, snap beans, broccoli, lettuce, onions, sweet corn, tomatoes and watermelon.

Douglas County Farm Production, 2007 and 2012	2007	2012	Percent Change
Top Crop Items			
Soybeans for beans (acres)	43,188	47,395	+9.7%
Soybeans for beans (bushels)	1,034,649	844,582	-18.4%
Corn for grain (acres)	29,564	31,483	+6.5%
Corn for grain (bushels)	3,269,890	1,403,449	-57.1%
Forage- hay, silage, green chop (acres)	33,488	28,681	-14.4%
Forage- hay, silage, green chop (tons, dry equivalent)	66,186	46,331	-30.0%
Wheat for grain (acres)	11,002	7,823	-28.9%
Wheat for grain (bushels)	257,358	359,575	+39.7%
Meat and Animal Products			
Cattle and calves sold	13,678	(D)	---
Hogs and pigs sold	3,035	499	-83.6%
Broilers and meat-type chickens sold	5,460	17,156	+214.2%
Dairy products sold ($1,000)	2,165	Not	---
Sheep and lambs sold	563	335	-40.5%
Fruit and Vegetable Production			
Vegetables harvested for sale (acres)	200	187	-6.5%
Land in orchards (acres)	206	177	-14.1%
Land in berries (acres)	7	13	+85.7%
(D) = Data withheld from the Census of Agriculture to avoid disclosing information for individual farms			

Table 3: Data Source, U.S. Census of Agriculture, 2007 and 2012

ORGANIC PRODUCTION

Data from the U.S. Census of Agriculture suggest that the number of organic farms has declined in both Douglas County and the 16-county Northeast Kansas region between 2007 and 2012. Sales data, however show a significant increase in sales of organic products produced by Douglas County farms during the same period. The USDA listing of Certified Organic farming operations is more likely to be an accurate and complete count – that listing shows that in March of 2016 there are 14 certified organic farms located in Douglas County, and 38 certified organic farms in the region. The recent addition of a "transitioning" label for those farms in the three-year period before they can be officially certified offers important new marketing opportunities to farmers who may be concerned about the additional costs that may be incurred within that period of change.
change.

A range of farms can benefit from organic certification. The following products are produced organically in Douglas County.

- Soybeans
- Clover
- Nuts (chestnuts, pecans, walnuts)
- Fruit (apples, pears, plums)
- Sprouts
- Herbs
- Native grass hay
- Vegetables
- Winter common wheat
- Lavender

Number of Organic Farms

	Agricultural Census, 2007	Agricultural Census, 2012	USDA AMS Certified Organic Lists, 2016[v]
Douglas County	16 farms Acres - 565 Sales - $99,000	Farms: 10 certified 3 exempt* 11 transitioning Acres – not reported Sales - $320,000	14 farms
16-County Region	75	20 certified 12 exempt 11 transitioning	38 farms

Table 4: Source: USDA Agricultural Marketing Service, Organic Integrity Database, https://apps.ams.usda.gov/integrity/. Data downloaded 03/28/2016.

*Farms with less than $5,000 in gross annual sales of organic product are exempt from certification requirement, but must operate under an approved organic system production plan to be able to market their products as organic.

SEASON EXTENSION

For fruit and vegetable growers, extending the production season can mean a much different marketing outlook. Douglas County is a leader in Kansas for taking advantage of simple on-farm approaches such as high tunnels. It ranks second in the state for the most number of high tunnels (at 18). (Lyon County surpasses with 26.)[vi]

CHARACTERISTICS OF FARM OPERATORS

Across Kansas, the average age of farm operators has increased from 50.9 years in 1982 to 58.2 years in 2012. In Douglas County, the average age of farm operators in 2012 was 59.2 years; more than half (51.7 percent) of Douglas County operators were 60 years or older. As principal farm operators grow older, the question of who will take their place becomes more pressing.

Approximately 80 percent of principal farm operators in Douglas County have been operating farms for ten years or longer, on par with the regional average. With fewer than ten percent of principal operators farming for less than five years, it appears there is not a ready slate of new farmers to take over when current operators eventually retire. (One exception within the region is in Franklin County, where nearly one-third of principal farm operators have been farming for five years or less.)

Farm operators in northeast Kansas are overwhelmingly white and male. Very few individuals of color were working as principal farm operators in 2012. Fewer than one in five principal operators were female. Interestingly, the more urbanized counties in the region, Wyandotte, Johnson, and Douglas, also have slightly higher proportions of female farmers, at 15.2% for Douglas and Wyandotte, and 17% for Johnson.

Substantial numbers of farmers work in off-farm jobs to supplement their farm earnings. In 2012, more than half (57.9 percent) of Douglas County principal farm operators were also working off the farm in other jobs. Nearly two-thirds (64.2 percent) reported that their primary occupation was something other than farming.

ECONOMICS OF AGRICULTURAL ACTIVITIES

According to estimates produced by the Kansas Department of Agriculture, the agriculture, food and food processing sectors generate more than 2,390 jobs and $395 million annually in economic contribution to the Douglas County economy (roughly 9.3% of the economy). These estimates are based upon the economic relationships or inter-industry linkages of 25 agriculture and food sectors (excluding the retail food sector), using the IMPact Analysis for PLANning (IMPLAN) modeling software. Across 16-county Northeast Kansas region, the total annual economic impact is estimated at $13.3 billion. *See KDA data source, below table, for a full description and listing of the sectors included in this analysis. New figures were published in 2017 that include retail sectors, too.*[vii]

Impact of Agricultural Products Upon Regional Economy

		Douglas County	16-County Regional Total
Direct Effects **(contributions from the sale of agricultural and food products)**	Employment	1,770	32,554
	Value Added	$92,843,924	$2,733,287,094
	Output	$324,023,459	$10,067,630,301
Indirect Effect **(economic benefit from farms and agricultural businesses purchasing inputs from supporting industries within the region)**	Employment	356	11,262
	Value Added	$22,339,261	$1,166,998,593
	Output	$41,916,087	$2,117,276,635
Induced Effect (**benefits created when employees of farms, agricultural businesses and the supporting industries spend their wages on goods and services within the region)**	Employment	263	8,852
	Value Added	$17,142,358	$687,749,507
	Output	$29,103,334	$1,172,101,567
Total Effect	Employment	2,390	52,668
	Value Added	$132,325,543	$4,588,035,215
	Output	$395,042,879	$13,357,008,503

- ***Value added*** **= labor income + indirect business taxes + other property taxes**
- ***Output*** **= Intermediate inputs + value added**

Table 5: Data Source, Kansas Department of Agriculture: http://agriculture.ks.gov/docs/default-source/ag-marketing/county-ag-stats/2016-county-ag-stats/douglas-ag-contribution-2016.pdf?sfvrsn=4

FARM SALES

In 2012, income from sales of products produced by Douglas County farms totaled $43.8 million. Across the 16-county region, farm sales tallied to more than $1.1 billion. Compared to sales in 2007, the 2012 sales figures reflect a 6 percent increase in Douglas County, and a 17 percent increase across the region.

Farm Sales (2012)	DG County	REGION	KANSAS
Total Market Value of Products Sold, 2012	$43,882,000	$1,170,250,000	$18,460,564,000
Value of crops, incl. nursery & greenhouse (2012)	$29,068,000	$688,927,000	$6,983,993,000
Value of livestock, poultry, & their products (2012)	$14,814,000	$481,397,000	$11,476,571,000
Total Market Value of Products Sold, 2007	$41,262,000	$1,000,847,000	$14,413,182,000
Percent Change, 2007 to 2012	+6%	+17%	+28%

Table 6: Data Source, Census of Agriculture 2007 and 2012.

Within the 16-county Northeast Kansas region, farm sales vary between more urban and more rural counties.[viii] In most of the counties in the region, the market value of crop sales exceeded the value of livestock sales. In Douglas County, crop sales far outweigh livestock and poultry sales, with total value of farm products sold ranking in the lowest-third among regional peers. In fact, the four counties with the lowest value of farm products sold also are the most populated, representing a much different economic and population context than the more rural counties. Nemaha County stands out within the region, with the highest farm sales of $224.6 million, and where the value of livestock sales was nearly double the value of crop sales. Nemaha County is home to several large hog farming operations – in 2012, there were 14 farms with more than 1,000 pigs and hogs. The county had the 3rd highest hog and pig inventory in Kansas in 2012; sales of hogs and pigs accounted for 55 percent of the total livestock sales from Nemaha County farms.

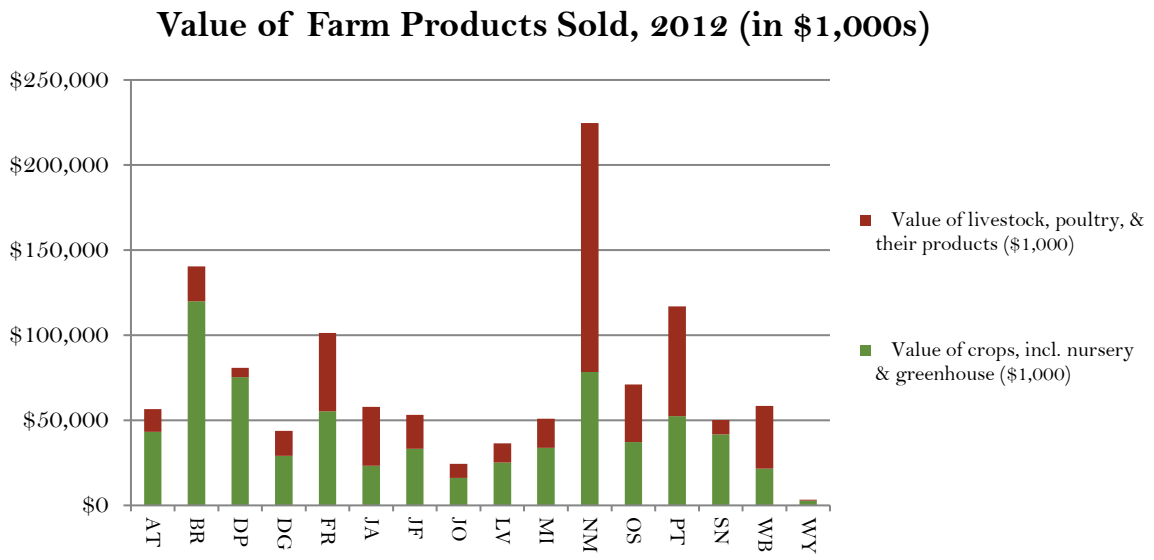

Figure 6: Data Source: 2012 U.S. Census of Agriculture, County Profiles

Most Kansas farms, particularly those producing food meant for direct human consumption, operate at a smaller-scale of production. (A range of $100,000 to $250,000 in sales or couple hundred acres of production has been identified as "mid-scale" agriculture.[ix]) This brings up questions about the future of farming's economic and social viability—and our ability to support a growing local and regional food system. Focusing on where farms are growing and finding viability—and where farmers struggle—can help guide actions at the local and state level to support rural communities.

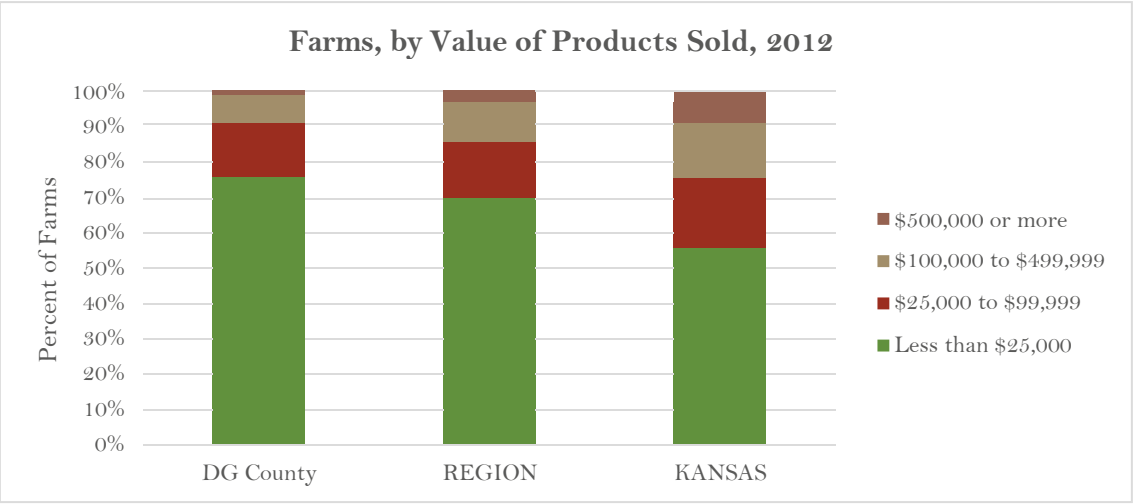

Figure 7: Data Source, Census of Agriculture, 2012

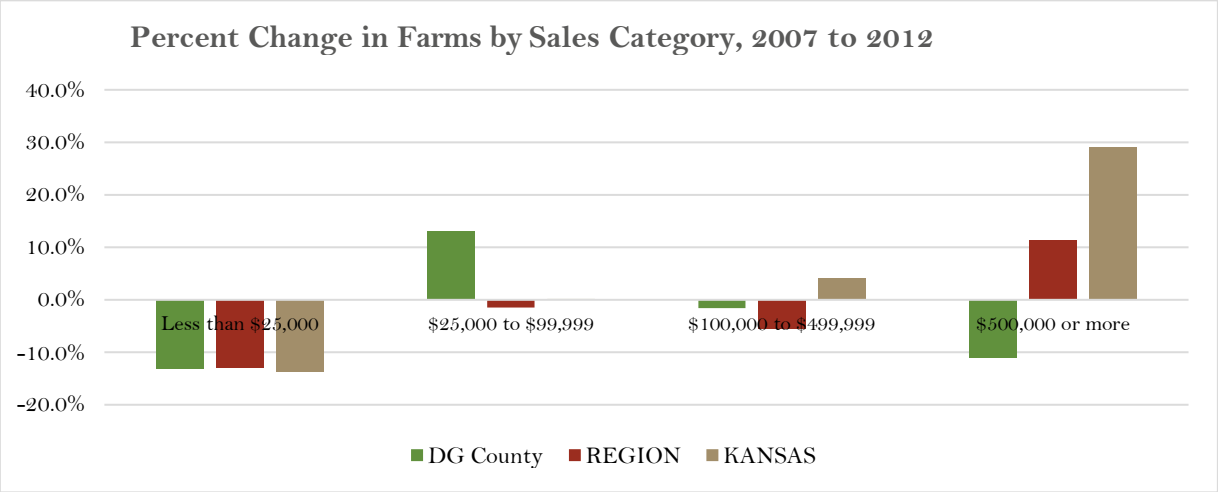

Figure 8: Data Source, Census of Agriculture, 2007 and 2012

The figure above shows changes in farm sales patterns between 2007 and 2012. In some farming sales categories, Douglas County mirrors regional and state-wide trends, including the loss of farms selling less than $25,000. Douglas County stands out among our regional peers and the state as a whole when we look at growth in farms with total sales between $25,000 and $499,999—the most significant positive change across all sales categories for County farms in the period. Another difference between Douglas County and the region and state comes in the loss of much larger farms with sales greater than $500,000, which increased regionally by almost as much as the 13% decrease in Douglas County and increased by about 29% across the state.

While the USDA Census of Agriculture (2012) reported that direct sales to consumers increased farmers and farms' ability to remain in business, it still remains to be seen what the impact in Douglas County might look like or if this holds true locally[x]. The changes in small-scale agriculture, reflected in Figure 8, suggests volatility at the smallest end of the scale where most farmers begin. This presents further opportunities for county-specific research at the small farm scale, to understand where our local farmers fit in to the larger narrative.

GOVERNMENT SUBSIDIES AND PAYMENTS TO FARMS

In addition to income generated from sales of farm products, many farms also receive supplemental payments from the Federal government. In 2012, slightly fewer than half of Douglas County farms received Federal payments, averaging $5,265 per farm. A variety of government programs provide payments to farmers. Not all farms qualify for the same type of program. Some programs target specific products or production practices. Navigating the complexity, time, and record keeping required with some programs can also make some programs less attractive to some farmers. The major forms of subsidies include payments through conservation programs to keep land out of production and crop insurance (See Appendix).

Federal Government Farm Payments, 2012

	DG County	REGION
Number of Farms	945	12,985
Percent of Farms Receiving Government Payments	46.9%	50.6%
Avg. Total Govt. Payments, Per Farm	$5,265	$6,405
Total Government Payments	$2,332,000	$42,052,000

Table 7: Data Source: U.S. Census of Agriculture, 2012

FARMING EXPENSES

Sales totals reveal only part of the farm economics story. Farmers must purchase the seed for crops, feed for livestock, fertilizers, fuel and equipment necessary to produce their products. Utilities and hired labor costs add to the list of expenses. When all production-related expenses are subtracted from sales figures, the average net farm income is usually modest. Looking only at the average expenses may also obscure differences between the types of farms in Douglas County. Larger farms tend to have higher capital input costs and lower labor costs, while smaller farms have higher labor costs and lower capital input costs.

Table 8: Data Source: U.S. Census of Agriculture, 2012

Farm Expenses, 2012 ($)	DG County	REGION
Livestock and Poultry Purchased or Leased	$3,036,628	$146,684,090
Feed Purchased	$4,228,377	$170,063,699
Seeds, Plants, Vines, and Trees	$5,585,529	$105,212,628
Fertilizer, Lime, and Soil Conditioners	$5,356,509	$134,470,502
Chemicals	$3,100,244	$68,881,138
Gasoline, Fuels, and Oil	$2,883,948	$68,912,497
Utilities	$988,176	$24,483,220
Hired Farm Labor	$2,900,912	$54,823,634
Contract Labor	$161,162	$5,704,713
Custom Work and Custom Hauling	$445,316	$17,170,475
Interest Paid on Debts	$2,582,830	$58,354,281
Supplies, Repairs, and Maintenance	$3,778,820	$77,631,276
Other	$7,362,550	$171,771,848
Total	$42,411,000	$1,104,164,000

NET FARM INCOME

Taking farm sales, government payments, and expenses in to consideration allows us to understand the net farm income—how the cash balances out for farmers. In 2012, the average net cash income to Douglas County farms was $11,315; the regional average income per farm was higher at $18,459. These figures are significantly less than the $50,903 average farm income for all Kansas farms. The difference in net farm income could have a number of different causes, including a prevalence of smaller farms and higher rates of off-farm employment. To bring Douglas County closer to the statewide average, the local food system will need to be robust and thriving.

Scale of production and market channel can be important factors in costs of production and level of sales in agriculture. Lower machinery and land costs—and thus different debt payments—may account for this differing economic outlook. However, analysis also showed that direct marketing farms that remained in business showed slower sales growth than non-direct marketing farms. This may be because retail food prices vary less than commodity markets.[xi] These findings indicate the importance understanding how costs of production, debt, and business growth may influence the sustainability of a farming operation.

Farm Net Income,	DG COUNTY		REGION		KANSAS	
2007 and 2012	2007	2012	2007	2012	2007	2012
Farms	1,040	945	14,352	12,985	65,531	61,773
Total Sales, in $1,000	$41,262	$43,882	$1,000,847	$1,170,250	$14,413,182	$18,460,564
Average Sales in $ per farm	$39,675	$46,436	$69,736	$90,123	$219,944	$298,845
Government payment, in $1,000	$1,994	$2,332	$36,433	$42,052	$427,144	$442,090
Farm production expense in $1000	$36,457	$42,411	$723,159	$1,104,164	$12,364,531	$16,726,876
Net cash farm income from operations, in $1,000	$9,965	$10,692	$279,201	$239,690	$2,961,691	$3,144,419
Average net cash income, per farm	$9,581	$11,315	$19,454	$18,459	$45,195	$50,903
Percent of farms reporting net losses	53.8%	56.3%	50.6%	52.7%	39.0%	42.5%

Table 9: Data Source: U.S. Census of Agriculture, 2007 and 2012

AGRICULTURE EMPLOYMENT, WAGES & EARNINGS

The majority of farms in Douglas County do not employ hired help. According to the 2012 Census of Agriculture, fewer than one in five Douglas County farms employed hired farm laborers in that year. Nevertheless, wages for the 615 workers that were hired totaled nearly $3 million.

Hired Farm Labor, 2012	DG County	REGION
Farms with Hired Farm Workers	185	2,717
Workers	615	7,192
Payroll	$2,903,000	$54,807,000

Table 10: Data Source: U.S. Census of Agriculture, 2012

The number of Douglas County hired farm workers reported in the Agricultural Census is significantly fewer than the 1,770 total Douglas County jobs related to the agriculture and food-sector businesses that were reported in the Kansas Department of Agriculture's economic impact estimates. The detail within the KDA analysis, however, shows that there were just 607 beef cattle ranching and farming jobs included in the total employment figure, a number that aligns more closely with the number of hired farm workers reported in the 2012 Census of Agriculture.

LOCAL FOOD MARKETING

Specialty meats, honey, and a diverse range of vegetables are produced in Douglas County and sold at farmers' markets, to restaurants, and through Community Supported Agriculture programs. The Census of Agriculture provides a helpful "big picture" of the agricultural sector in Douglas County, but it does not capture the diversity that exists among smaller-scale producers. Due to the scale of current production, requirements to protect identity, and the voluntary nature of the Census of Agriculture, supplementing the findings with our knowledge on-the-ground helps provide a more complete picture.

A 2015 USDA survey gathered new data about local foods and direct marketing. However, data was not able to be published for the state of Kansas due to sample size.[xii] The Kansas Department of Agriculture conducted a survey of Kansas Specialty Crop Producers in 2016. Results had not yet been released at the time of this report.

The local farmer group Growing Lawrence provides a snapshot of other farm products not directly captured in the Census of Agriculture findings. In 2015, its members produced, among other products:

- Multiple varieties of apples
- Wine and table grapes
- Herbs
- Peaches and plums
- Grass-fed lamb
- Christmas trees
- Goats
- Heirloom crop varieties

DIRECT FOOD SALES

Although the majority of products sold by Douglas County farms are sold to commodity markets, a smaller number of farmers are growing and selling foods directly to consumers. According to data from the 2012 Census of Agriculture, 86 Douglas County farms sold foods valued at $497,000 directly to consumers during that year. That sales total is slightly higher than the $480,000 in sales reported in 2007. Fifty-one farms reported selling foods directly to retail outlets, twelve sold through Community Supported Agriculture programs (weekly produce subscriptions), and forty-seven produced and sold value-added products. Unfortunately, the Agricultural Census did not collect information about the market value of food sold through these market channels. The Douglas County Farmers Market study, released in January 2017, estimated that the total sales value in Douglas County to be around $800,000.[xiii] Nationally, analyses of data from the Census of Agriculture have shown that farms that sell through direct markets had a higher survival rate between 2007 and 2012 than farms without direct marketing.[xiv]

A 2015 Local Food report from the USDA to Congress showed that growth in local food sales was concentrated in intermediated sales (sales to retail grocers, restaurants, institutions or aggregators), not direct to consumer. The U.S. Census of Agriculture tracks food sales directly to consumers for human consumption, but does not capture food sales to institutions (such as schools or hospitals), or intermediated markets. In Iowa, where the Regional Food System Working Group has surveyed farmers for whom local food sales comprise a primary portion of their business, researchers estimate that local food sales may be as much as 18 times greater than the direct sales

captured by the U.S. Agricultural Census.[xv] (More information on farmers markets and CSAs will be included in the Retail section.)

Direct Marketing Production Summary	DG COUNTY		NE KANSAS REGION	
	2007	**2012**	**2007**	**2012**
# of Farms	1,040	945	14,352	12,985
Total Market value of products sold ($1,000)	$41,262	$43,882	$1,000,847	$1,170,250
Farms with direct sales	87	86	763	662
Total direct sales	$480,000	$497,000	$3,970,000	$2,922,000
Direct sales, as percent of all $ products sold	1.16%	1.13%	0.40%	0.25%
Average Value per Farm of Direct Sales	$5,517	$5,775	$5,203	$4,414
Farms with direct sales, as percent of all farms	8.4%	9.1%	5.3%	5.1%
Marketed products directly to retail outlets (farms)	Not Reported	51	Not Reported	193
Produced & sold value-added products (farms)	47	47	518	513
Markets through CSA (farms)	10	12	73	57
Agritourism Farms	8	8	108	164
Agritourism Income	(D)	$400,000	---	---

Table 11: Data Source: 2012 U.S. Census of Agriculture (D) = Data withheld from the Census of Agriculture to avoid disclosing information for individual farms

AGRITOURISM: FINDING VALUE BY VALUING FINDING THE FARM

Agritourism can represent a new marketing opportunity for a farm, especially one near urban markets. By making the farm itself an attraction, the farmer diversifies his revenue stream while also adding value to the existing enterprise. In Douglas County, thirty businesses have registered as agritourism operations with the State of Kansas Tourism. Residents and regional visitors are increasingly enjoying the range of agritourism offerings in the area. The Kaw Valley Farm Tour, and annual event celebrating agritourism, has steadily increased its ticket sales, rising from 669 in 2013 to 898 in 2016—with an estimated reach of 3,500 people. (Tickets are sold by the carload.)

LOCAL FOOD ECONOMIC IMPACT

Determining the true nature of economic patterns in localized food systems is challenging.[xvi] Economic impact estimates which account for the nuanced differences of a robust local food system in Douglas County are not currently available. However, some researchers have begun to investigate this area of inquiry. In 2016, the USDA published a new Toolkit about adapting the economic models like the KDA estimates shown above to a local or regional food system.[xvii] It is clear that while the Census of Agriculture provides tremendous insight about farming trends statewide and regionally, it is necessary to work on the local level to get an accurate picture of Douglas County farming trends.

When a consumer buys from a local farmer, instead of a non-local source, the farmer who lives in the region may be more likely to then spend that dollar at another local businesses. This can include hiring local labor and buying from area input suppliers. Because more of the money stays in the local economy, it can circulate further through

other purchases made by that those employees or input supply stores make. The longer a dollar stays in a local economy, the greater the impact it can have.

Some studies from other areas suggest that these tighter local connections can have a positive benefit for a region. For example, a team of researchers studied three local food systems in rural Missouri and Nebraska. After collecting local data, they built an economic model to understand how the purchasing, hiring, and spending connections differ between traditional, export-oriented commodity production and a locally-oriented system. They found that "Farmers oriented toward local food production are often less profitable than conventional farms but still generate larger income and employment effects in their communities."[xviii] Another study, from rural Minnesota, found that small-scale local farm operations return nearly a quarter-million dollars more to the local economy per million dollars of output than conventional agriculture.[xix] These studies suggest that looking simply at sales or profit may not demonstrate the overall impact of a sector. As well, the specific scale of farms in Douglas County (many smaller scale) may uniquely allow the acceleration local food system development.

It is important to remember that estimating the economic benefit of local food production and sales is complex. The Nebraska and Missouri researchers note that the "magnitude of economic benefits from local food systems depends" on the local demand and farming community's ability to satisfy that demand. Additionally, the experts investigating the dynamics of local food economies point out that **tradeoffs will always occur when looking at changing economic patterns,** including loss in some sectors. Thus, economic impact analysis help communities understand about **net benefits** that could result from policies or programs that inject new funding into the existing system.

PERSONAL PRODUCTION OF FOOD

Home gardening offers individuals the opportunity to have easy access to fresh and affordable fruits and vegetables during the growing season. In addition to the food that is produced, gardening offers other benefits – physical activity, the ability to limit chemical or pesticide applications, and a sense of satisfaction and connection to the food. National studies and other data such as seed and nursery sales have documented a resurging interest in home gardening in recent years.[xx] However, we cannot easily determine the number of home gardens in Douglas County.

The health benefits of gardening were recognized in the 2013 Douglas County Community Health Plan, which includes a goal of increasing access to healthy food for low-income families, which identifies the following as an opportunity for community action: Establish a system that engages low-income families as food growers and small business operators.

Community Gardens provide access to suitable growing spaces and an opportunity to grow food, for community members who are interested in food gardening, but lack a space at their residence. Apartment-dwellers or renters may lack access to land, or may not be permitted to disturb existing lawn and landscaping surrounding their dwellings. Compared to neighboring counties, Douglas County has a relatively low rate of home ownership (52 percent). Others live in locations where there is not sufficient sunlight in their yard to support food cultivation, in locations where soil contamination makes food cultivation unsafe, or in subdivisions where homeowner associations restrict what can be grown in yard spaces. Some worksites have even begun putting in gardens to help employees stay healthy and take active breaks. Even schools have begun integrating gardens into activities and education. **In 2016, Douglas County had 25 community and school gardens**.

CITY OF LAWRENCE COMMON GROUND PROGRAM

In 2012, the City of Lawrence created the **Common Ground Program**, helping residents create community gardens and promote urban agriculture.[xxi] The goal of the program is to transform vacant or under-utilized city-owned properties into sites of healthy food production for community residents. The program began with 5 sites in 2012 and in 2017 had 10 sites

.

Through 2015, the program had resulted in more than 5,200 pounds of produce donated to local food pantries, and had conducted numerous gardening classes and field trips for student groups. The Incubator Farm, in North Lawrence, serves Lawrence residents as they grow their farming business.

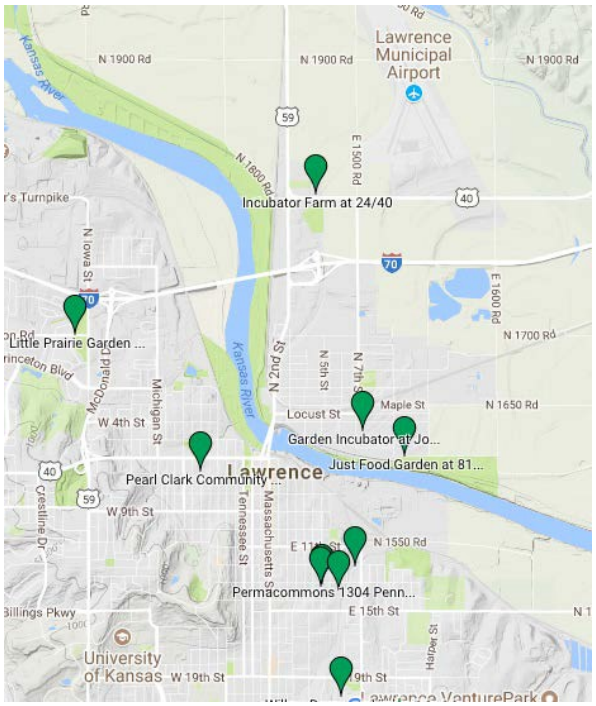

Figure 9: 2016 Common Ground sites

Accomplishments during the 2016 growing season include:

- Number of gardens/farms: 10
- Number of gardeners/farmers: 203
- Number of community events/classes: 53
- Number of participants in events: 965
- Market value of produce sold: $64,200
- Pounds of produce donated: 1350

In the 2016 season, the Common Ground program added three new sites and expanded the Lawrence Community Orchard. Just Food came on-board as a community partner, offering both neighbors and clients raised-bed plots and a larger space to allow two clients to pursue market production.

Other community gardens in Douglas County are operated by the KU Student Farm, Lawrence Public Schools, Eudora Public Schools, and the Baldwin Chamber Women's Group.

ENDNOTES

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[ii] Survey of Farming and Conservation Practices, 2015 – 2016 NRI-CEAP, http://www.nrcs.usda.gov/wps/portal/nrcs/main/national/technical/nra/nri/

[iii] KS Statistical Abstract 2014

[iv] USDA, Amber Waves article, https://www.ers.usda.gov/amber-waves/2017/januaryfebruary/us-per-capita-availability-of-red-meat-poultry-and-fish-lowest-since-1983/

[v] USDA AMS Organic Integrity Database https://apps.ams.usda.gov/integrity/About.aspx

[vi] Know Your Farmer, Know Your Food Compass Map, http://www.usda.gov/wps/portal/usda/knowyourfarmer?navid=kyf-compass-map

[vii] 2017 Kansas Department of Agriculture Economic Impact Analysis for Agriculture: http://agriculture.ks.gov/docs/default-source/ag-marketing/ag-contribution-2017.pdf

[viii] The previous farming analysis conducted here by Ken Meter in 2008 also had sales data from BEA that are higher than USDA Census of Ag—we did not pursue comparative BEA data for this report.

[ix] *Why Worry About the Agriculture of the Middle*?, http://www.agofthemiddle.org/papers/whitepaper2.pdf

[x] USDA, Amber Waves article, https://www.ers.usda.gov/amber-waves/2016/september/for-beginning-farmers-business-survival-rates-increase-with-scale-and-with-direct-sales-to-consumers/

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[xii] USDA Census of Agriculture, https://www.agcensus.usda.gov/Publications/2012/Online_Resources/Local_Food/index.php

[xiii] Douglas County, KS, Farmer's Markets Assessment, https://www.douglascountyks.org/groups/fpc/media/farmers-markets-of-douglas-county-kansas-assessment- and-recommendations

[xiv] USDA, Amber Waves article, https://www.ers.usda.gov/amber-waves/2016/march/local-foods-and-farm-business-survival-and-growth/

[xv] Arlene Enderton & Corry Bregendahl, *2013 Economic Impacts of Iowa's Regional Food Systems Working Group*, Regional Food Systems Working Group, November 2014.

[xvi] "It is difficult to draw conclusions about the local economic impact of local foods systems because the existing literature has narrow geographic and market scope," ERS report: http://www.ers.usda.gov/media/1763057/ap068.pdf

[xvii] Economic Impacts of Local and Regional Food Systems, www.localfoodeconomics.com

[xviii] Johnson et al, 2014. "Economic Impacts of Local Food Systems in the Rural Midwest: Evidence from Missouri and Nebraska" https://bsr.stlouisfed.org/EI_CDAudioConference/Home/GetArtifact/30?resourceId=307

[xix] University of Minnesota Extension, http://www.extension.umn.edu/community/research/reports/docs/2015-Financial-Benchmarks-Local-Food-Operations.pdf

[xx] National Gardening Association's *Home Gardening Trends (2008-2013) Report*

[xxi] https://www.lawrenceks.org/common_ground

FOOD INFRASTRUCTURE

INTRODUCTION: THE CHALLENGE OF MISSING INFRASTRUCTURE

In our growing local food system, challenges emerge when a smaller-scale farmer wants to sell into larger-scale wholesale markets. Following the first Douglas County Food System Assessment, this issue has been explored in statewide studies, including *Feeding Kansas* from the Kansas Rural Center and the KS Food and Farm Taskforce Report.[i]

The gap in aggregation, processing and packaging infrastructure limits many farmers' ability to expand production and pursue business growth. It also presents logistical and communications challenges for buyers like hospitals, schools, and grocery stores interested in purchasing local food to meet rising customer demand.

In 2013, the Douglas County Food Policy Council and numerous state and regional partners embarked upon a multi-year effort to address this issue and support creation of a "food hub" to aggregate local products. The Northeast Food Hub Feasibility Study came to the conclusion that **"There is a lack of food infrastructure that can assist farmers in getting their product to larger markets, including cold storage, light processing, packaging and sufficient meat processing plants."**[ii] Since then, the Douglas County's Economic Development Strategy identified food systems infrastructure development as a priority area.[iii]

Although we have identified market potential and both farmers and buyers have expressed interest, **the cost of building new infrastructure likely poses an on-going challenge.** The food hub feasibility study suggested that **potential short-term opportunities may lie within creative partnerships and collaborations that leverage existing infrastructure resources.** For long-term sustainable development, the need for investment in infrastructure development remains important.

INFRASTRUCTURE ON THE FARM TO SUCCESSFULLY REACH MARKET

Lack of on-farm infrastructure, such as cooling and packaging capacity, also poses a barrier that makes it difficult for local smaller-scale farmers and producers to sell to larger wholesale markets. Cold storage that begins on the farm can have a significant impact on the quality and shelf life of fresh produce. The ability to package for retail or wholesale buyers' needs can build professionalism, ease logistics for intermediaries, and enhance a farmer's branding.

K-State Research & Extension has provided essential trainings to farmers to improve their post-harvest handling skills and pursue experimental, low-cost infrastructure solutions, such as the Cool-Bot.[iv] These activities exemplify the important role that Extension and other farmer support organizations play in equipping farmers with knowledge and tools to not just grow food, but successfully get it to market and build dependable customer relationships.

FOOD PROCESSING INFRASTRUCTURE

Food processing can range from specialty production to larger-scale industrial processes, representing end-products for home consumers or food industry buyers. Steps of food processing can include washing, cutting, drying, freezing, and canning.

In other parts of the U.S., light processing (such as washing, peeling and chopping) and freezing of fruits and vegetables has proven valuable for scaling up farm-to-school programs to best fit school budgets and in-school food preparation equipment.[v] While the Lawrence Public Schools have made progress on their farm to school efforts in term of relationships with local farmers and building knife skills among kitchen staff, they still experience limitations such as limited staffing and equipment. It is clear that minimally or lightly processed foods will prove more useful for increasing the availability of local foods outside the season. (See Retail section for more on Farm to School efforts.)

Currently, there are no light processing facilities in the region. This infrastructure gap will limit the scale-up of local food sourcing for school nutrition programs and other institutional buyers. Among the state-licensed food processers in the area, most produce specialty products, like wine, baked goods, jams and jellies, and candy. This is called "value-added production," since the processing allows the product to fetch a higher-value price. This differs somewhat from the business-to-business processing that is a part of the "missing infrastructure" challenge. Nonetheless, these businesses represent an important entrepreneurial endeavor and component of our local food economy. Some also prioritize local sourcing and contribute to market opportunities for farmers at a smaller scale.

To address this processing gap and make it easier to sell their products directly to consumers and retail or institutional buyers, some farms have established on-farm packing facilities for distributing vegetables, fruits, or other produce. In Kansas, a total of 107 farms reported that they had on-farm packing facilities in 2012; more than half of those (58 farms) were located in the 16-county northeast Kansas regions, and 22 of the farms were located in Douglas County.

REGIONAL MEAT PROCESSING

Minimal meat processing capacity in the region also limits options for small-scale livestock producers, particularly for those interested in selling into local markets. Meat and poultry producers who wish to sell their products to other businesses or through retail outlets must have the meat processed in a facility that is inspected either by the USDA or the Kansas Department of Agriculture. Only meats processed by USDA-inspected facilities may be sold outside of the state; meat processed by KDA-inspected facilities may be sold to retail customers within Kansas. Custom meat processors, which process meats for consumption by the livestock owners, their families and guests, are inspected for construction and sanitation requirements but not on a continuous basis.

According to the Kansas Department of Agriculture in April of 2017, there are 38 active custom slaughter and processing plants in Kansas, and 45 active KDA-inspected slaughter and processing plants.[vi] In addition, there are 69 USDA-inspected meat, poultry and egg processing facilities in Kansas; ten of those facilities provide inspection and certification services but do not actually slaughter or process meat. Another 27 facilities are commercial food businesses that would not process meats other than for use in their own products. Of the 18 USDA-inspected facilities in the Region, only 8 process meats for use outside of their own commercial businesses. No meat processing facilities exist in Douglas County, although there has been a growth in butcher/smoker businesses. The first Douglas County food assessment found that, in general, a smaller-scale meat producer would have to drive 50 miles to have their meat processed.

Kansas Meat Processing Plants (2017)

	KS Custom Plant		KS State-inspected		USDA-inspected	
	Kansas	Region	Kansas	Region	Kansas	Region
Slaughter	31	5	32	4	30	7
Processing	37	8	45	5	60	18
Retail	21*	4*	3	0	N/A	N/A
Red Meat	36	8	43	5	55	18
Poultry	2	1	7	1	33	11
ID Warehouse	N/A	N/A	N/A	N/A	12	5
Commercial Food Business	N/A	N/A	N/A	N/A	27	11
Total	38	8	45	5	69	18

Table 1: KS Custom Plant and State-inspected data from Kansas Department of Agriculture, pulled April 4, 2017 from http://agriculture.ks.gov/divisions-programs/meat-and-poultry-inspection/general-information ; USDA-inspected data from http://www.fsis.usda.gov/wps/portal/fsis/topics/inspection/mpi-directory

**Custom processors can get a retail exemption, and sell meat across a retail counter, if they start with a meat product that was processed at a facility under State or Federal inspection (i.e., breaking down cuts from an inspected carcass. They are not allowed to sell products fully processed at the Custom facility, and must keep the custom products separated from the inspected ones, with appropriate labeling. The State's Meat and Poultry Inspection program does conduct annual reviews of custom meat processing plants, and such facilities should be registered with the State.*

VALUE-ADDED PRODUCTS

Douglas County boasts a vibrant specialty food processing sector of micro and smaller-scale producers. Their products include wines and beer, fermented foods, ready-to-eat dinners, beverages like coffee and kombucha, breads, tofu, and a range of sweets. Unfortunately, it is difficult to obtain accurate counts or lists of food processing or manufacturing businesses in the County or region because of inconsistent assignment of industry classification codes in census and business data.

For a food entrepreneur, there's a large gap between experimenting with a recipe in your home and establishing a marketed product in retail outlets. In addition to all the business planning it takes, finding properly-scaled equipment, meeting food safety regulations, securing a license, and getting liability insurance can pose significant financial barriers. Community incubator kitchens help to reduce that barrier and ease the transition from home experimentations to commercial production. Across the state and within Northeast Kansas, there's a growing conversation about the value of incubator kitchens in food-based economic development.[vii] In 2016, the Kansas Department of Agriculture released it's first-ever Incubator Kitchen Resource Guide.[viii]

Figure 1: User of Culinary Commons, Douglas County Incubator Kitchen. www.culinarycommons.org

One of three incubator kitchens in Douglas County is **Culinary Commons,** the incubator kitchen at the Douglas County Fairgrounds, located in Building 21. For a list of all incubator kitchens in the region, see the Appendix.

FOOD AGGREGATION AND DISTRIBUTION SYSTEMS

In the mainstream commercial food system, there are usually several intermediate steps of aggregation and distribution to facilitate getting food from the farm to the end consumer. These intermediaries may include businesses like warehouses, cold storage, and various modes of transportation to get foods from one step in the supply chain to the next. At times, smaller-scale farmers may take on some of these roles as part of their marketing processes, while others choose to focus on production and let other business partners handle these steps. Unfortunately, it is not possible to obtain an accurate count or listing of food aggregators, storage facilities or distributors from business databases because of inconsistency and lack of specificity in the way that NAICS business classification codes are assigned.

Following a national conversation about leveraging existing distribution companies to build linkages and support more local food transactions,[ix] the Northeast Kansas Food Hub Study identified existing local businesses like Pines International and Hillary's Eat Well with capacity to potentially share storage or warehouse space. For transportation, it looked to interested regional businesses, including Fresh Food Express, based in Kansas City, and Hildebrand Dairy, based in Junction City for potential opportunities for collaboration and partnership.

SPURRING FOOD HUB DEVELOPMENT IN NORTHEAST KANSAS

The challenge of missing infrastructure is not unique to Kansas. Across the United States, communities of farmers and institutional buyers have taken increased attention to finding workable solutions that promote farm viability and better enable institutions to source and serve local foods—promoting healthy eating habits and enriching the local economy.[x]

A **food hub** represents a potential means to reduce these barriers by serving as the intermediary between farmers and larger buyers. A wealth of resources and attention has gone into closer analysis of food hubs in recent years.

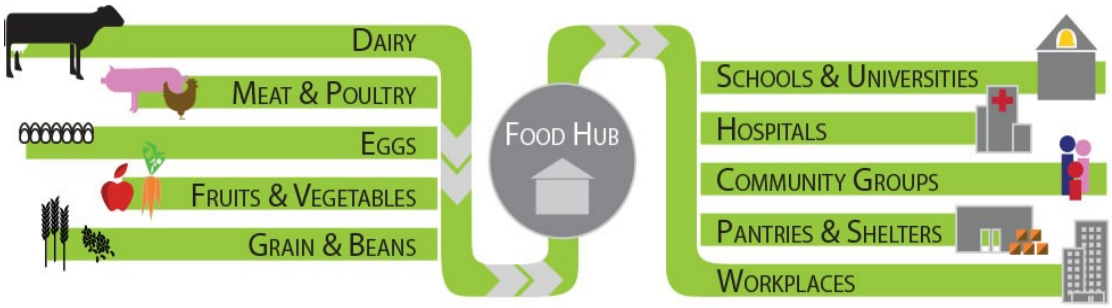

Figure 2: Diagram of Food Hub Operations. Source: Northeast Kansas Food Hub Study

To understand the feasibility of a food hub in Northeast Kansas, the DCFPC received a Rural Business Enterprise Grant from the USDA and Planning Grant from the Kansas Health Foundation. The group hired SCALE, Inc. to conduct a feasibility analysis, including **surveys and interviews with 78 buyers and 120 farmers in the region**.

The report identified **potential for job growth and business viability in the food infrastructure sectors**. It brought clarity to some questions left unanswered in the first food assessment, such as the **variability within definitions of local.** Generally, a larger buyer will favor a greater distance (including what some define as "regional," such as neighboring states or the entire Midwest). While this variability may lead to communications challenges and potential disagreement among farmers, buyers, and consumers, it also presents an opportunity for strategic marketing and consumer education. In addition, many of the motivations to support local food systems tend to include more than a strictly defined geographic radius.[xi]

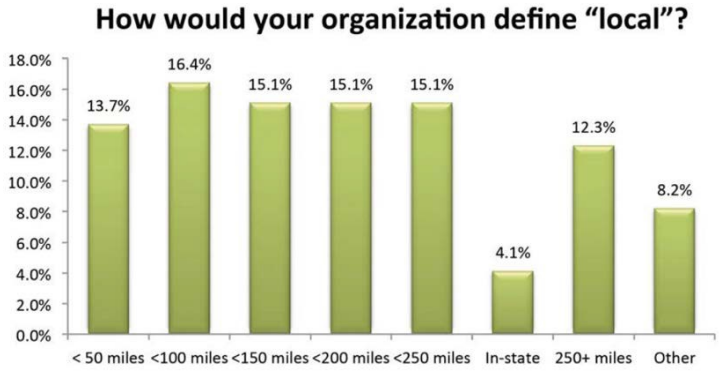

Figure 3: Northeast Kansas Food Hub Feasibility Study, page 21, Figure 2

The study also offered valuable insights concerning the avenues for incorporating local food through institutional purchasing processes—importantly, noting that **there are multiple 'tiers' among regional buyers, with larger buyers often having more complex purchasing and ordering standards.** A successful food hub or other "food infrastructure" business must thus balance the needs of farmers with the requirements of buyers.

Figure 4: Northeast Kansas Food Hub Feasibility Study, page 35, Figure 6

Equipped with the findings from the Northeast Kansas Feasibility Study and a concurrent report from Kansas City[xii] (the two studies drew from the same farmer and buyer research), a group of farmers began meeting in late 2014 to determine how they could draw from the findings and launch a regional food hub. The group received technical assistance from the Douglas County Sustainability Office, K-State Research & Extension-Douglas County, the KU Small Business Development Center, the Lawrence-Douglas County Chamber of Commerce, and Lincoln University Extension in Missouri. By the end of 2015, they had incorporated as a farmer-owned cooperative, Fresh Farm HQ, and secured start-up capital through grants.

Funds Generated to Support Food Hub Study & Launch (2013 – 2017)						
USDA (Rural Business Enterprise Grant)	Public (Federal)	$	58,250.00	2013	Food Hub Feasibility	DCFPC
Kansas Health Foundation (Planning Grant)	Foundation	$	10,000.00	2013	Food Hub Feasibility	DCFPC
Kansas Health Foundation (Implementation grant)	Foundation	$	40,000.00	2015	Farm Fresh HQ (Regional Food Hub)	FFHQ
USDA (Value Added Producers Grant)	Public (Federal)	$	244,943.00	2015 - 2017	Farm Fresh HQ (Regional Food Hub)	FFHQ
Total		**$**	***353,193.00***			

Table 2: Funding Data provided by DCFPC Staff

Other farmers have begun investing on-farm and pursuing less formal relationships to build new marking connections and scale-up production. The impact of the feasibility study to help spur local interest in the potential to scale up production among farmers and tap into larger local food markets represents a key early stage function that local government can play in economic development for local food systems.

EMPLOYMENT IN FOOD PROCESSING AND MANUFACTURING SECTORS

The U.S. Bureau of Labor Statistics routinely publishes summary statistics on U.S. business entities, aggregated by the NAICS codes that describe the primary nature of the business. The data include the number of businesses in the category, the number of employees, average employee wages and total annual wages. Douglas County data for two food infrastructure sectors in 2015 are included below.

Industries in the Food Manufacturing subsector (NAICS 311) transform livestock and agricultural products into products for intermediate or final consumption. The food products manufactured in these establishments are typically sold to wholesalers or retailers for distribution to consumers. The eight Douglas County businesses included in this summary are: one animal food manufacturer, two fruit and vegetable preserving businesses, four bakeries and one manufacturer of perishable prepared foods.

Douglas County Food Sector Employment, 2015	
NAICS 311 - Food Manufacturing (Includes Animal Food Manufacturing)	
Average Annual Employment	234
Annual Establishments	8
Total Annual Wages	$11,736,271
Average wage/employee	$50,084
NAICS 4244 - Grocery and Related Product Wholesalers	
Average Annual Employment	6
Annual Establishments	4
Total Annual Wages	$99,694
Average wage/employee	$17,856

Table 3: Employment data from Bureau of Labor Statistics, Quarterly Census of Employment and Wages

ENDNOTES

[i] Kansas Food and Farm Taskforce, https://agriculture.ks.gov/divisions-programs/agricultural-marketing-advocacy-and-outreach-team/local-food-and-farm-task-force See also, Feeding Kansas, http://kansasruralcenter.org/wp-content/uploads/2014/11/0-Feeding-Kansas-KRC-2014.pdf

[ii] Page 11, Food Hub Feasibility Study, http://douglascountyks.org/groups/fpc/media/food-hub-feasibility-study-full-report

[iii] Community Economic Development Strategic Plan, https://drive.google.com/file/d/0B0mrxJMPQ2A7dHBUOXY2VDdmaUU/view

[iv] Cool-Bot information, https://www.storeitcold.com/

[v] Light Processing in Farm to School supply chain, http://www.cias.wisc.edu/growing-farm-to-school-supply-chains-with-local-vegetable-blends-research-brief-96/

[vi] Kansas Department of Agriculture, http://agriculture.ks.gov/divisions-programs/meat-and-poultry-inspection/general-information

[vii] The Food Hub Feasibility Study reminded, however, that kitchens cannot solve every infrastructure problem.

[viii] Kansas Department of Agriculture, *Incubator Kitchen Resource Guide* *https://agriculture.ks.gov/divisions-programs/food-safety-lodging/incubator-kitchen-resource-guide*

[ix] This strategy is part of the "Agriculture of the Middle" project, and the notion of "values-based supply chains." *Why Worry About the Agriculture of the Middle*, http://agofthemiddle.org/?p=53

[x] National Good Food Network, http://www.ngfn.org/resources/food-hubs, and USDA, https://www.ams.usda.gov/services/local-regional/food-hubs

[xi] A report to Congress from the USDA on Local Foods makes this point, and uses "local" and "regional" interchangeably when talking about place-based food systems. Low, Sarah A., Aaron Adalja, Elizabeth Beaulieu, Nigel Key, Steve Martinez, Alex Melton, Agnes Perez, Katherine Ralston, Hayden Stewart, Shellye Suttles, Stephen Vogel, and Becca B.R. Jablonski. Trends in U.S. Local and Regional Food Systems, AP-068, U.S. Department of Agriculture, Economic Research Service, January 2015. https://www.ers.usda.gov/publications/pub-details/?pubid=42807

[xii] Kansas City Regional Food Hub Study, http://extension.missouri.edu/jefferson/documents/KC%20Food%20Hub%20Feasibility%20Study-%20small.pdf

RETAIL

INTRODUCTION

This section examines the retail food sector in Douglas County, including the economic influence it has on the community and how the mix of businesses and institutions create a "food environment." The range of retail options for consumers to buy food in Douglas County includes:

- Grocery Stores
- Restaurants (Full Service and Fast Food)
- Farmers' Markets & Community Supported Agriculture Programs
- Institutions like schools, hospitals, and universities
- Other stores, like supercenters, convenience stores, dollar stores and pharmacies

Together, they represent a major economic force in our county and region, generating over $299 million in revenue and 6,600 jobs.

In addition to an industry perspective, the term "food environment" describes how these varied food retail outlets impact the lives of residents. The U.S. Centers for Disease Control and Prevention defines the food environment as including at least one of the following:[i]

- The physical presence of food that affects a person's diet,
- A person's proximity to food store locations,
- The distribution of food stores, food service, and any physical entity by which food may be obtained,
- OR a connected system that allows access to food.

The food environment in which a person lives exerts significant influences on his/her eating choices. Both the private and public sectors shape our food environment. Businesses seek to locate in neighborhoods where they hope to make a profit. Restaurants and grocery stores remain where they find a reliable customer base. For local government and public agencies, zoning regulations influence where different types of commercial businesses can locate. Institutional purchasing decisions influence what foods are available in schools and city recreation facilities.

Results from the first food system assessment prompted the Food Policy Council to ask, "How can urban planning make a positive difference?" It raised questions about policies directing public transportation, separation of use policies that prohibit businesses from locating within residential areas, and location of food retail outlets, such as grocery stores and farmers' markets, which could aid in creating more equitable access to healthy foods.

Previous local studies includes a KU student report, *Transportation Access to Healthy Food* (2013),[ii] and the Downtown Grocery Initiative. With this assessment update, we have examined and analyzed the current food environment of Lawrence and Douglas County to continue looking for actionable answers. We highlight some innovative community projects to promote community health and a stronger local food system. When we consider the fact that, at times, less healthy or non-local food options are more readily available, easier to find, and cheaper to buy, we better understand the challenges individual consumers face when making food purchase choices.

THE RETAIL FOOD ECONOMY

Estimates generated from the national Consumer Expenditure Survey data indicate that Douglas County households spend, on average, about $6,500 annually on food purchases.[iii] Slightly more than one-third of that amount is spent on food prepared and consumed away from home. Spending patterns are similar across the 16-county region. Total estimates of annual consumer spending on food amount to more than $299 million in Douglas County, and more than $3.6 billion across the region.

Table 1 Total Consumer Spending, 2016

Total Consumer Food Spending (annual), 2016	
Douglas County	$299,129,643
REGION	$3,669,888,427

Douglas County and the other urbanized counties in the region, including Johnson, Shawnee and Wyandotte, have much higher populations—resulting in much larger total consumer expenditures than those in less populated areas. Recent analysis in Douglas County suggests that nearly $800,000 is spent annually at our county's farmers' markets.

NON-AGRICULTURAL JOBS IN THE FOOD SYSTEM, WAGES AND EARNINGS

In 2015, more than 6,600 Douglas County workers were employed in jobs that were related to the Retail Food sector, with annual wages that totaled more than $102,387,975. The largest category of food-sector employment was for restaurants and other eating places, where 4,870 people were employed. This group also had the lowest annual wage per employee, at $13,973 per year.

It should be noted that the data presented here do not capture all food-related employment. The numbers presented here are for businesses whose primary business activity is food-related. Food service workers in other businesses, such as schools, hospitals or concession environments would not be represented in these numbers.

Douglas County Retail Food Sector Employment, 2015

Retail Food Sector	# of Establishments	Average Annual Employment	Average Annual Wages per Employee	Total Annual Wages
NAICS 44511 – Supermarkets and other Grocery Stores	17	1,509	$19,612	$29,589,128
NAICS 44512 – Convenience Stores	5	37	$16,280	$600,998
NAICS 4452 – Specialty Food Stores	8	53	$10,988	$577,772
NAICS 7723 - Special Food Services (contract & catering)	14	182	$19,702	$3,575,892
NAICS 72251 – Restaurants and Other Eating Places	233	4,870	$13,973	$68,044,185
TOTAL EMPLOYMENT (all sectors, food and non-food)	2,946	48,379	$36,573	$1,769,359,000

Table 2: Data Source: U.S. Bureau of Labor Statistics, Quarterly State and County Employment and Wages

RETAIL LOCATIONS

DOUGLAS COUNTY FOOD LOCATIONS

As the table below demonstrates, there is a wide range of different food retail outlets in Douglas County. The majority are located in Lawrence.

		# of Businesses in Each Category			
Primary NAICS	**Description**	**Lawrence**	**Eudora**	**Baldwin**	**Lecompton**
452311	Warehouse clubs & supercenters	0	0	0	0
44511	Supermarkets & other grocery (excl. convenience stores)	18	1	1	0
445120	Convenience stores	14	2	0	0
447190	Other gasoline stations	24	0	0	0
445230	Specialty food store - fruit & veg. markets	4	1	0	0
445292	Specialty food store - confectionary & nuts	1	0	0	0
445210	Specialty food store - meat markets	0	1	0	1
445299	Specialty food store - other specialty food stores	13	0	0	0
722511	Restaurants, full-service	138	7	9	1
722513	Restaurants, limited-service	74	2	3	0
722514	Cafeterias, grills, buffets	1	0	0	0
722515	Snack & non-alcoholic beverage bars	25	0	0	0
722410	Bars & drinking establishments	26	0	0	0
722320	Special food services - caterers	12	0	0	0
722310	Special food services - food service contractors	1	0	0	0
722330	Special food services - mobile food service	0	0	0	0

Table 3 Regional Food Locations, by NAICS codes, downloaded from Reference USA, 5/3/2017

GROCERY STORES

As the first food system assessment found, grocery items are sold in numerous retail venues where the primary business is not food, such as big-box discount stores, dollar stores, convenience stores, and even some home improvement stores. In 2014, Walmart claimed the leading share of the national grocery retail market with 24.5 percent of the market share. Kroger, the corporate umbrella for Dillon's grocery stores was next in line, with 12.9 percent of the market.[iv] Consumers across all income levels are increasingly looking to large retailers for their food shopping.[v] The quality of the food offered in different types of retail stores varies widely, with many of the smaller non-grocery businesses offering primarily highly-processed and non-perishable food items. Grocery retail is a highly competitive business, and many smaller, locally-owned grocery stores are facing increasing profitability challenges and struggling to survive. A number of rural communities in Kansas have lost their community grocery stores.[vi]

In Douglas County, more than 100 retail stores currently sell grocery items, including big box stores and supercenters (Wal-Mart, Target, K-Mart), grocery stores and supermarkets, specialty food stores, produce markets, dollar stores, convenience stores and pharmacies.

Of these retailers, the majority are located in Lawrence, including all of the supercenters. In Lawrence, we find increasing competition in the natural foods sector.[vii] Two new grocery stores have been constructed since 2011, Natural Grocer and Sprouts, and the Dillon's at 18th and Massachusetts St. was completely renovated. Two smaller grocery stores are located outside of Lawrence—Baldwin City Market and Gene's Heartland Foods of Eudora. Both smaller communities also have a Dollar General and a few gas stations or convenience stores. This market situation leads to a limited range of options for the smaller communities, especially residents with limited transportation options into a city center. However, it is important to remember that community business patterns and other factors influence where one decides to shop, beyond immediate proximity.

FOOD RESOURCES MAP

Of course, mainline grocery stores do not comprise the only venues in a community for residents to access food. There are a number of community resources, too. The map below shows the geographic distribution of various retail food outlets and community gardens in Douglas County cities. In addition to traditional grocery stores, consumers are getting their food from supercenters and dollar stores or convenience stores. This new pattern speaks to the importance of how we build our neighborhoods to facilitate access to fresh food. Our communities have also seen the growth of organic and local sections within traditional grocery stores, as well as the addition of more specialty natural food markets.

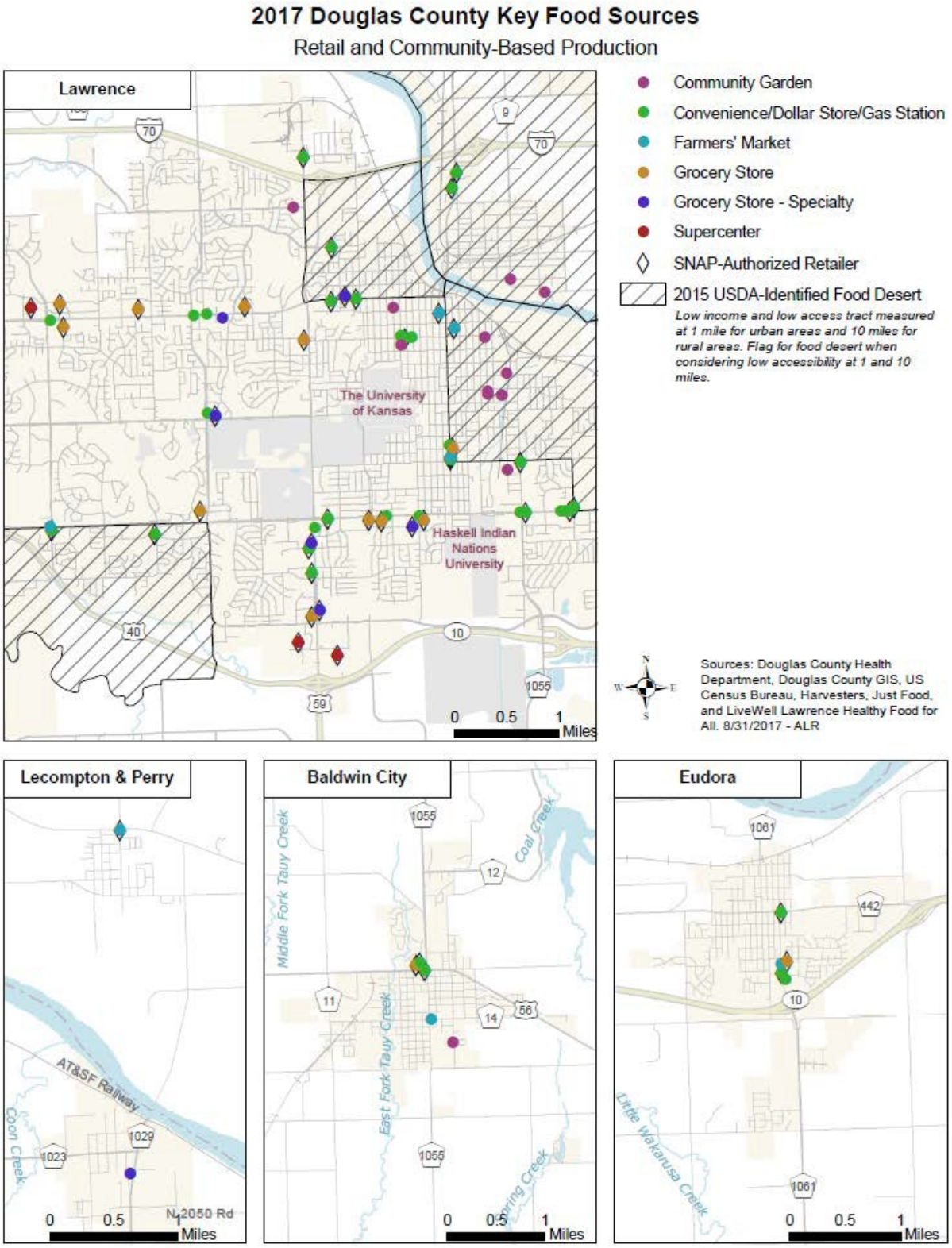

Figure 4: Douglas County Community Food Resources

Despite the large number of food retailers, some rural portions of Douglas County and some areas within the City of Lawrence remain underserved, and have low access to grocery retail outlets. The Community Health Plan identified "Establish new opportunities to purchase fresh produce in North Lawrence and other parts of Douglas County with limited options, including farmer's markets, integration into existing retail options, or opening corner stores" as a strategy for helping low-income families better access healthy food. Nationally, innovative financing options from private and city funding sources have provided incentives to enable the establishment of food retail options in lower-income neighborhoods.[viii]

Efforts to establish a grocery store in Downtown Lawrence, which qualifies as a USDA "food desert", have garnered particular interest among residents, city officials, and developers since the release of the first food system report. The recent construction of several luxury loft complexes in downtown has also added a new consumer market to potentially support a neighborhood grocery store. The Downtown Neighborhood Improvement Association and Lawrence-Douglas County Health Department conducted two surveys in 2015 to assess consumer interest in a downtown grocery store. An overwhelming majority of respondents cited "healthy" food as an important product quality, with more than half also selecting local. Forty six percent of respondents cited a personal vehicle as their mode of transportation, while 29% cited walking. Over half of the respondents expressed a preference for a downtown grocer over their current options. (Note: the survey did not collect a representative sample of respondents, but did target those living in North and East Lawrence.)

RESTAURANTS

Restaurants comprise another important component of the retail food environment. Lawrence boasts a vibrant restaurant culture, some of which are on the leading edge of re-introducing consumers to local food. Massachusetts St. serves as a gathering place for locally-owned, unique restaurants along with some regional and national franchises/chains. Other eateries are clustered around main thoroughfares of the city. The restaurant sector also offers a range of ethnic cuisines, providing economic opportunities to immigrants and their descendants to earn a living by sharing their cultural traditions. A food truck sector has also emerged in Lawrence.

In recent decades, the rates of development and population growth have been a key interest in Lawrence. Horizon 2020 requires a monitoring of retail space and the City has maintained a commercial retail market report, updating it every several years.[ix] In Downtown, food and beverage services have remained fairly consistent between 2006 and 2015, around 15% of the available retail space, although square footage and the number of businesses have increased. This analysis suggests that Lawrence serves a demand population beyond its residents, attracting shoppers from other cities and counties.

Eudora, Baldwin City, and Lecompton all boast local eateries for community gathering and entrepreneurship. Between 2012 and 2016, the e-communities program for rural entrepreneurship (funded by NetWork Kansas and hosted by Douglas County) has loaned over $60,000 to rural restaurants.[x]

FAST FOOD RESTAURANTS

Just as a lack of access to healthy food options can lead to poor diets among community residents, an over-abundance of less healthy food options in the community food environment can also result in poor dietary habits for community members. Fast food restaurants, defined as limited-service food establishments where patrons generally order or select items and pay before eating, are often pointed to as purveyors of unhealthy food.[xi] In addition to offering low prices, speed and convenience, many foods sold by fast food restaurants are high in calories, fats, salt and sugars. When lack of access to retail outlets that offer healthy foods is combined with easy access to less healthy fast food options, as is often the case in low-income neighborhoods, the diets of community members are likely to suffer.

In comparison to other counties in the 16-county region, Douglas County has the highest number of fast food establishments per capita. In 2014, there were 99 fast food restaurants in Douglas County (see appendix for a break-out by county in NE Kansas). In Riley County, home to the other major state university, density of fast food establishments is more similar to statewide levels.

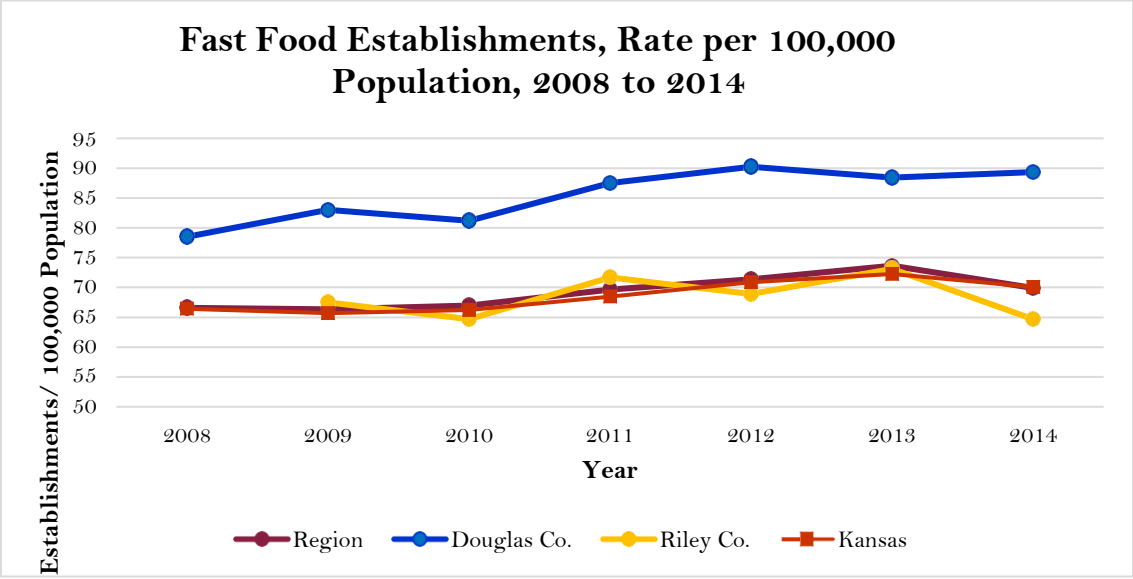

Figure 1: Data Source: Community Commons, Food Environment Report. Original data from U.S. Census Bureau, County Business Patterns with additional analysis by CARES, 2014.

FARMERS MARKETS & COMMUNITY SUPPORTED AGRICULTURE

Nationally, the number of farmers' markets has grown rapidly over the past two decades, hitting a plateau in recent years. Farmers' markets provide a number of benefits to a community, including

- A direct marketing opportunity for small farmers
- Allow farmers to retain a larger share of the food sales dollar
- Bring fresh locally-produced foods to consumers
- Allow consumers the opportunity to learn about how and where their food is grown
- Create a fun social opportunity for community members.

They can offer consumers great deals on fresh produce and other local goods, as in-season products, with their increased production and thus abundant availability, may offer lower prices.[xii]

The farmers' market sector is dynamic and growing in Douglas County and the surrounding region. In 2011, the county had just two farmers' markets—now six exist! All operate on slightly different schedules throughout the growing season. Cottin's Farmers' Market operates year-round, with an indoor setting in colder weather. Farmers' markets in neighboring counties have grown as well, with at least 33 in the 16-county region.

This growth has created additional competition for vendors and consumers. To best support the farmers' markets in the county, including the farmers and area consumers, the Food Policy Council received a USDA Farmers' Market Promotion Program Grant in 2015, which was utilized to conduct a study and analysis of farmers' markets in the County. A resulting report with findings and recommendations was released in January 2017.

Douglas County Farmers Markets at a Glance

DOUGLAS COUNTY FARMERS MARKET	WHEN	WHERE	VENDORS	SHOPPERS	MANAGEMENT
Lawrence Farmers Market	Saturday mornings, 7-11am (April to August); 8am-noon (September to November)	Public parking lot on New Hampshire St., between 8th and 9th, Lawrence	50-55	1,850	Paid (part-time)
	Tuesday, 4-6:30pm	Lawrence Public Library parking garage and adjacent green space	7-10	120	Paid (part-time)
Cottin's Farmers Market	Thursdays, 4-6:30pm (Year-round)	1837 Massachusetts St., Lawrence	18-22	200	Volunteer (business host)
Clinton Parkway Farmers Market	Wednesdays, 4:30-6:30pm	Clinton Parkway Nursery parking lot, 4900 Clinton Parkway, Lawrence	5-6	150-175	Volunteer (business host)
Eudora Farmers Market	Tuesday, 4:30-6:30pm	Gene's Heartland Foods parking lot, 1402 Church St., Eudora	8-12	35	Volunteer (vendor)
Perry-Lecompton Farmers Market	Fridays, 4-6:30 pm	Fast Trax parking lot, Hwy 24 & Ferguson Rd., Perry	8-12	40-80	Volunteer (vendor)

Figure 2: Data Source, The Farmers Markets of Douglas County (Synopsis of Findings and Recommendations), Page 7

In addition to the Farmers' Markets, Douglas County is also home to one of the region's longest-operating Community Supported Agriculture (CSA) subscription programs, Rolling Prairie. The CSA marketing approach allows consumers to buy a "share" of a farmers' harvest before the season begins, and then receive weekly deliveries as different crops are harvested. The arrangement provides needed upfront capital and guaranteed sales to farmers, while offering a direct way for consumers to receive fresh, local foods.

Interest in the creation of workplace-based CSA programs has also grown. The City of Lawrence, Douglas County, Lawrence Memorial Hospital, Lawrence-Douglas County Health Department, and KU all have programs. A number of preschools participate, too, through the Healthy Sprouts program. To support workplaces interested in offering this opportunity to their employees, the Health Department created a Toolkit[xiii] that will be updated in 2017.

FOOD IN INSTITUTIONAL SETTINGS

In addition to grocery stores and restaurants, many community residents get a significant portion of their food from an institutional food service provider, such as a school, workplace cafeteria, hospital, or vending and concessions in a public venue. The Lawrence-Douglas County Health Plan identified several of the community's large institutions as central sites of intervention to cultivate a healthier community.[xiv] The LiveWell Lawrence health coalition has spearheaded collaborative efforts across the city to help businesses and institutions present a healthier food environment for families, employees, and community members.[xv]

Some institutional food service operations are also trying to incorporate more locally-sourced foods into the menu items that they offer. One recently employed strategy is to require that currently-contracted food suppliers include more locally-produced foods in the items that they offer. This approach looks to influence what the mainline distributor chooses to carry, and thus provide to its customers—offering the advantage to institutional food service directors of handling transactions with a single entity.[xvi]

SCHOOLS & CHILDCARE

Schools are a particularly important component in the food environment because they can help children develop good habits and knowledge to share with family and carry forward into their adult lives. Federal regulations guide the type of foods that schools can serve to students, although local food service managers can make menu choices within the over-all nutrition framework. Collectively, the three public school districts in Douglas County served 1,708,607 meals to K-12 students during the 2014-2015 school year. As well, childcare centers have begun to integrate food gardening, classroom cooking, wellness policies and a movement towards family-style dining into their curriculum, including Hilltop Childcare Center, Lawrence Montessori, Prairie Moon Waldorf School and the Ballard Center.

The Community Health Plan identifies "Improve the nutrition environment for children birth to age 18 (including schools, child care settings and before/ after-school programs)" as a key strategy[xvii]. School wellness policies, increasing participation in meal programs, supporting school gardens, and increasing local foods in school cafeterias were actions identified to help work towards this objective.

Building upon the success of the West Middle School garden, (maintained by the Community Mercantile Education Fund's Growing Food Growing Health program) the Lawrence School District launched an initiative in 2014 to establish gardens at all elementary and middle schools. The plan will not only offer students new, healthy foods to try, but also feature classroom tie-ins for a range of subject areas. As of spring 2016, all four middle schools had operating gardens, with efforts underway to establish learning gardens at the district's 12 elementary schools.

FARM-TO-SCHOOL PROGRAMS

Over the past decade or so, interest in incorporating locally-sourced foods into the meals prepared and served by K-12 schools has grown. Utilizing local foods in school meals results produces a triple-win by supporting local farmers and producers, stimulating local and regional economies, and creating opportunities to teach students about nutrition and where their food comes from. USDA has encouraged and incentivized schools to purchase and serve local foods by offering grants. In 2015, USDA conducted a Farm to School Census, distributing survey questionnaires to all public, private and charter school districts in the United States. Five school districts in Douglas County and 85 districts in the 16-county region responded to the survey. Four of the five responding Douglas County school districts reported that they were participating in farm to school programs in the 2013-2014 school year.

2015 USDA Farm to School Census	Douglas County	16-County Region	Kansas
Districts responding to the Farm to School Census Survey	5	85	322
Districts participating in Farm to School, 2013-2014	4 (80.0%)	32 (37.7%)	105 (32.6%)

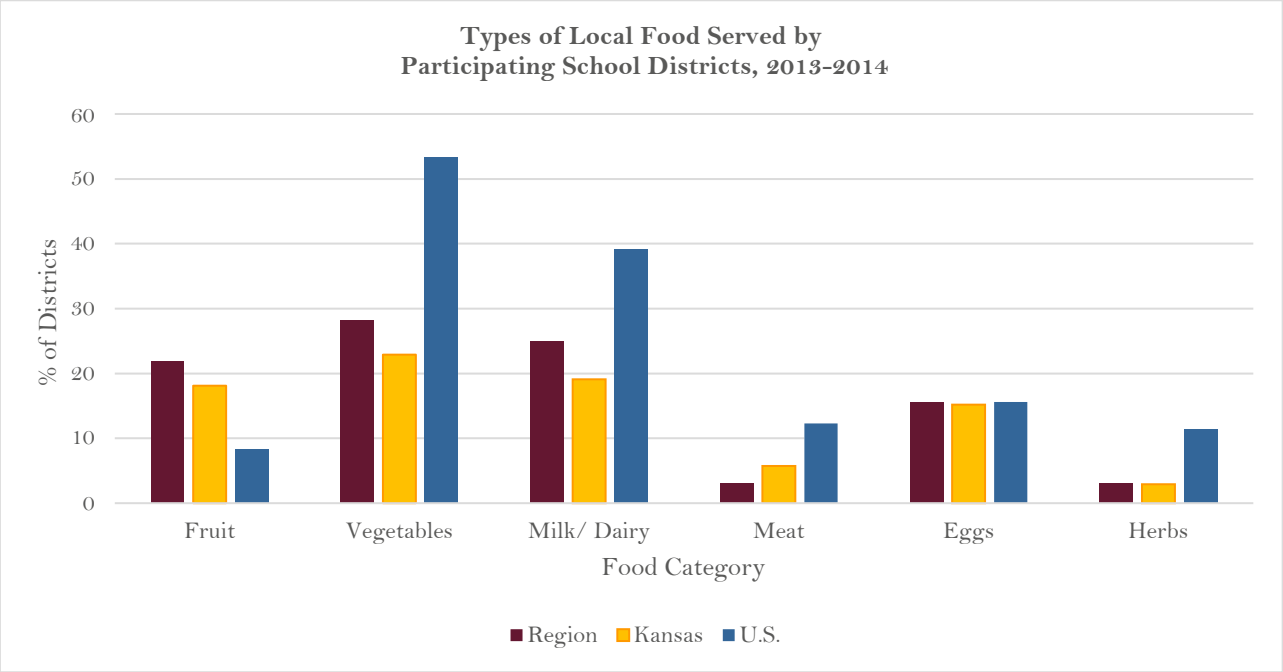

Figure 3: 2015 Farm to School Census, USDA

COLLEGES AND UNIVERSITIES

College and university campuses are another provider of large numbers of meals in the Douglas County community. The three universities located within Douglas County (KU, Baker and Haskell) have a collective enrollment of nearly 31,000 students, many of whom regularly eat meals on campus. In addition to students, faculty and staff members may also dine in campus-based food service venues.

KU DINING

The distributor that KU sources from (Sysco KC) is nationally recognized for their relationship with the regional food hub south of the Kansas City metro, Good Natured Family Farms. The business partnership has proven to be a game changer in facilitating local food options to large buyers which lack the flexibility to work individually with farmers.[xviii] However, **tracking local purchases to demonstrate results can prove to be as difficult as making the purchases in the first place.**

At KU, local food purchases are tallied in combination with "community based"[xix] and third-party certified foods (such as Organic or Fair Trade). Products from these three categories accounted for 9.66% of the KU Food Service budget in Fiscal Year 2015. Of 254 product items on the list, 33 qualified as local. In addition, herbs and tomatoes grown in the Kansas Memorial Union roof top garden are used in campus dining services. Types of local food products used fell in to a range of categories, including dairy, fruit, protein, and vegetables. The majority of products locally sourced were vegetables.

HOSPITALS

As key partners in community health and major employers in the communities that they serve, hospitals have an opportunity to serve as positive role models by ensuring that the food and beverages that they make available to patients, employees and visitors include healthy options. The Kansas Hospital Association has recognized this opportunity, and has encouraged their member hospitals to participate in a voluntary collaborative effort to offer healthier food and beverage options in the hospital setting. Among the policy changes that might be considered are increasing the availability of drinking water, limiting access to sweetened beverages, and healthier food offerings in cafeterias, vending machines and meetings. To date, 75 Kansas hospitals have signed on to the voluntary pledge, and 23 hospitals have implemented formal policy changes related to their food and beverage environments. Lawrence Memorial Hospital is among the list of hospitals that have implemented formal changes[xx].

Although data on the exact number of meals served in area hospitals are not available, a conservative estimate can be derived by multiplying the annual number of inpatient days, times 3 meals per day. Using that method, Lawrence Memorial Hospital would have served an estimated 56,940 patient meals in 2015. That number does not include additional meals served to hospital staff and visitors, which is important to research further. Given that patients are a "highly susceptible population", they require more stringent food safety standards, which is a consideration going forward with locally-sourced institutional sales.

ENDNOTES

[i] Center for Disease Control, *http://www.cdc.gov/healthyplaces/healthtopics/healthyfood/general.htm)*
[ii] Douglas County, Transportation Access to Healthy Food Report, https://www.douglascountyks.org/depts/sustainability/media/transportation-access-healthy-food-report

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[x] https://www.douglascountyks.org/depts/administration/e-community
[xi] Note: municipal codes may offer their own specific definition for fast food and drive-through food establishments
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[xiii] Lawrence Douglas County Health Department, http://ldchealth.org/DocumentCenter/View/238
[xiv] Lawrence Douglas County Health Department, http://ldchealth.org/221/Community-Health-Plan
[xv] LiveWell Lawrence, http://www.livewelllawrence.org/

[xvi] School Food Focus, http://www.schoolfoodfocus.org/, and Farm to Institution in Kansas, http://publichealthlawcenter.org/sites/default/files/resources/phlc-fs-KS-farm-to-institution-2016.pdf, Local Food Procurement from PolicyLink: https://www.policylink.org/sites/default/files/edtk_local-food-procurement.pdf, and http://www.chlpi.org/wp-content/uploads/2013/12/Local-Procurement-Handout_FINAL_WEB-FRIENDLY.pdf

[xvii] *Roadmap to a Healthier Douglas County: 2013-2018 Douglas County Community Health Plan.* Lawrence-Douglas County Health Department (2013). Available for download at http://ldchealth.org/DocumentCenter/View/236 .

[xviii] For more on KU dining, visit http://union.ku.edu/dining/sustainability/

[xix] The definition comes from the Business Alliance for Local Living Economies (BALLE)

[xx] Kansas Hospital Association (KHA), *Healthy Kansas Hospitals*, http://www.kha-net.org/CriticalIssues/HealthyKansasHospitals/

FOOD ACCESS

Access to healthy food options is essential to healthy eating habits that are, in turn, essential to good health. In 2013, the Lawrence-Douglas County Health Department set a goal in the Community Health Plan "to create environments where healthy food consumption is easier and more likely". They thus set a strategy of enhancing access to healthy food for low-income families.

When we talk about access to healthy food options, there are three key considerations:

1. **PHYSICAL:** Community residents must be able to physically get to places where healthy foods are available for purchase.
2. **AFFORDABLE:** Community residents must be able to afford to buy the healthier food options, or must be able to obtain assistance that enables them to do so.
3. **CULTURALLY APPROPRIATE:** Community residents should have access to foods that are culturally appropriate, and be able to access food through socially acceptable means that respect and preserve individuals' dignity.

There are many ways to define which areas are considered "food deserts" and many ways to measure food store access for individuals and for neighborhoods. Most measures and definitions take into account at least some of the following indicators of access:

- Accessibility to sources of healthy food, as measured by distance to a store or by the number of stores in an area.
- Individual-level resources that may affect accessibility, such as family income or vehicle availability.
- Neighborhood-level indicators of resources, such as the average income of the neighborhood and the availability of public transportation.

USDA Food Access Research Atlas

PHYSICAL ACCESS & FOOD DESERTS

Physical access to healthy food options is usually measured by considering two factors:

- the distance that the consumer must travel to the nearest retail grocery store
- the consumer's access to reliable transportation to travel to that closest store

In urban areas, a distance of one mile or less to the nearest grocery store is commonly considered to be adequate; in rural areas a distance of 10 miles or less is commonly considered adequate. Low household incomes are often used as a proxy indicator of less access to reliable transportation. Geographic areas in which a substantial portion of the population is low income (a poverty rate of 20 percent or higher), and one-third or more of households live further than one mile (in urban areas) or ten miles (in rural areas) from the closest full-service grocery stores are designated as '*food deserts*' to denote challenges with getting to a grocery store that offers a variety of healthy food options.

The U.S. Department of Agriculture has used census and business data to identify census tracts that meet this definition of food deserts. (Census tracts are neighborhood areas that contain several thousand residents, used for understanding community characteristics and changes.) At the time of the first food system assessment, USDA analysis had identified three census tracts as food desert in Douglas County, based upon 2010 data. The most recent USDA analysis, which used 2015 data, identified four census tracts within Douglas County as food deserts (see map, labeled here as Figure 1). All four food desert tracts are located within the City of Lawrence. According to this food desert designation from USDA, about 18,000 people reside in the four census tracts identified as food deserts. Of those residents, more than 8,500 have low access to a grocery store, and approximately 3,300 of those low-access individuals are also low-income.

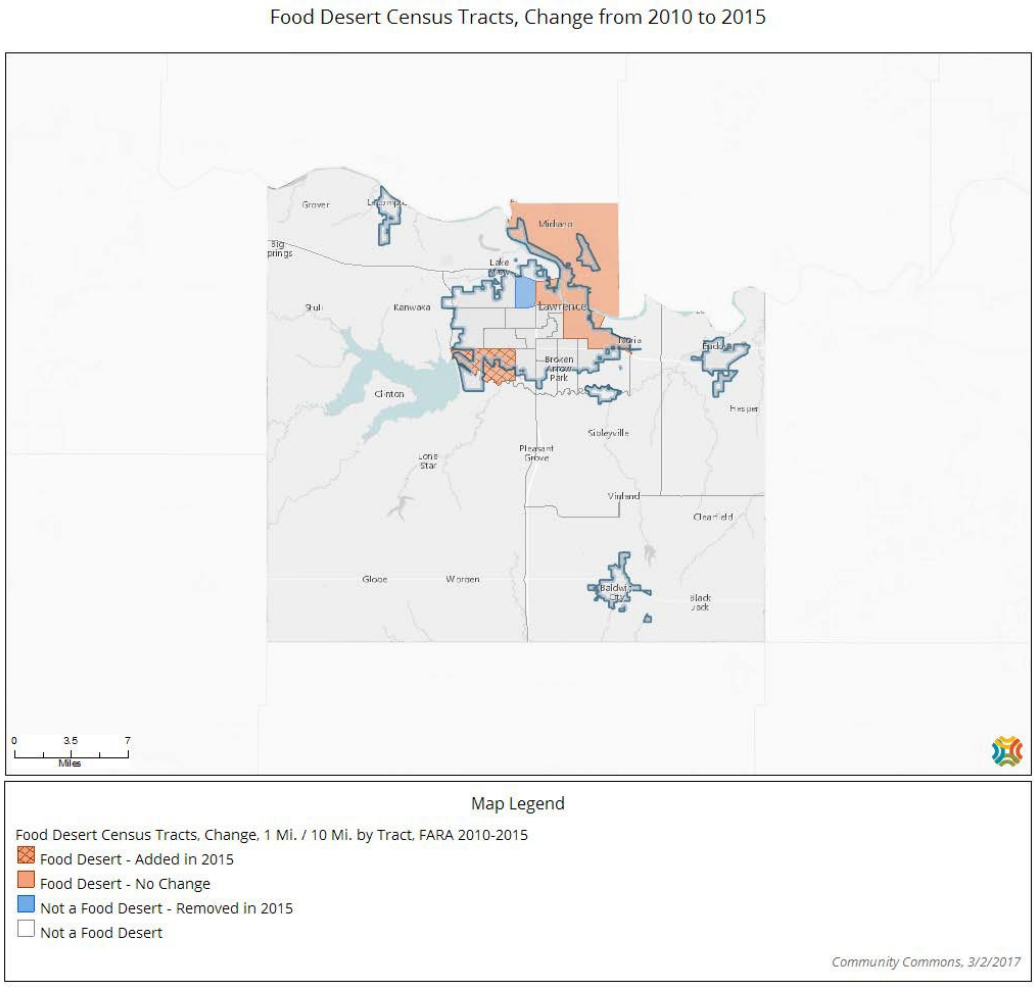


Figure 1: Comparison Map, 2010-2015 USDA Food Deserts in Douglas County.

Population with Low Access to Grocery Store, Douglas County, 2015	Tract 1	Tract 2	Tract 5.01	Tract 8.01	Total
Population, 2010	2,847	6,819	3,227	5,498	18,391
Number of people with low access	2,847	1,943	1,900	1,852	8,543
Percentage of people with low access	100.0%	28.5%	58.9%	33.7%	46.5%
Number of low-income people with low access	811	813	924	760	3,308
Percentage of low-income people with low access	28.5%	11.9%	28.6%	13.8%	18.0%
Number of children (0-17) with low access	661	531	362	459	2,013
Number of Seniors (age 65+) with low access	274	114	146	76	610

Table 1: Source: USDA Food Access Research Atlas; analysis, last updated January 2017, using 2015 data.

(Low access defined as the count of people living more than 1 mile form a supermarket. Low income defined as annual family income at or below 200% of the Federal Poverty Level Threshold for family size.)

With the national attention that the "food desert" concept has garnered, it is important to remember that barriers to access may still exist in other neighborhoods. In addition, the concept of "food swamps" emerged as a way to describe areas where a high density of retail food outlets offering primarily less healthy foods may contribute to poor dietary habits among the residents.

AFFORDABILITY OF HEALTHY FOOD OPTIONS

Affordability is the second component of access to health foods. It does little good to have an abundant supply of healthy food options if consumers in the community lack the financial means with which to purchase the food.

WHAT IS AFFORDABLE?

The way to measure "affordability" depends to a degree on the eye (or, wallet) of the beholder. Nationally, we spend much less of our budgets on food today than past generations of Americans—and less than most of our peers in other nations today. This may skew how someone assesses "affordability" when it comes to food.

Low-income families frequently face difficult choices when trying to stretch the family budget to cover basic needs. Clients served by private-sector food assistance agencies in Kansas during 2013 frequently reported that they were forced to choose between food and other necessities such as education, medications, mortgage or rent payments, transportation and utilities (Figure 4).

Choices between food and other basic needs among food pantry or meal program clients

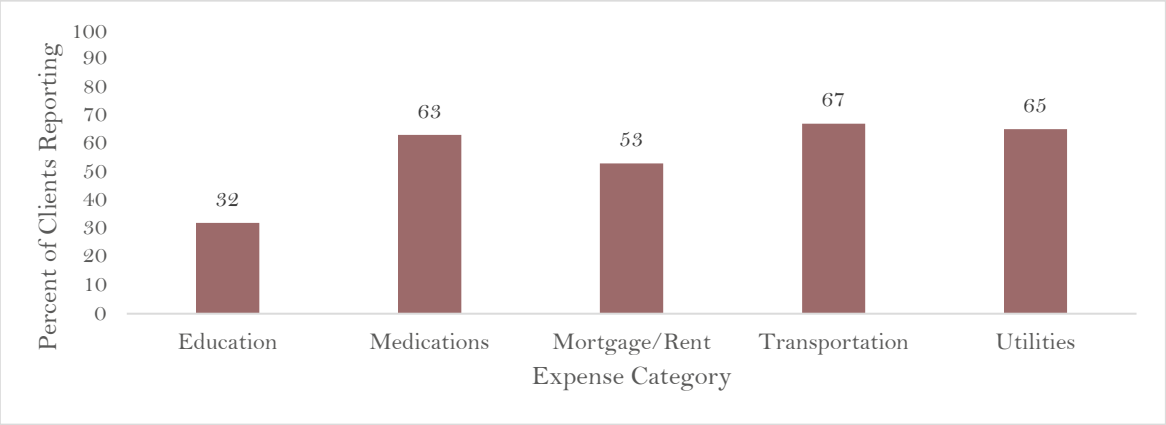


Figure 5: Source: Feeding America, Hunger in America 2014: State Report for Kansas

VARIABILITY IN PRICES

The price of food has obvious direct effects on affordability and access, particularly for community members with limited incomes. A variety of studies in recent years have explored how food prices compare within the same community. In 2013, a survey of 277 food retail locations in the Wichita area found surprising variability in food prices for comparable food items, with the highest prices often found in lower-income neighborhoods.[i] Nationally, retail data indicates that the costs of fruits and vegetables, in fresh and various processed forms, can range for any given product by several dollars[ii]. Some consumers perceive farmers' markets as having higher-prices than grocery stores. Place-based research findings suggest, however, that buying local, in-season produce can actually offer cost savings for some products.[iii] Currently, no data of this nature has been collected in Douglas County, so it is not known whether similar variability may exist here.

In addition to price, Americans on average now spend less time preparing food. When time constraints become a key variable in making food decisions, the cost-savings advantage of healthy whole foods may be traded off to foods that are quicker to prepare but less healthy.

SALES TAX ON FOOD

Sales taxes on food purchases add to the total cost of food and may make it more difficult for low-income families to be able to afford the food that they need. Kansas is one of only fourteen states that tax sales of food for home use. The current state sales tax rate is 6.5%. With local sales tax rates added on, the total sales tax on food exceeds 9% in some parts of the state. Studies examining the impact of the food sales tax have concluded that the tax has a small negative effect of sales volumes of rural grocery stores, and that border counties may be losing food sales as patrons cross the state line to purchase food where it is either tax-free or taxed at lower rates.[iv]

This issue has drawn attention in recent years, and advocates have petitioned the state Legislature to reduce or eliminate the state sales tax levied on food.[v] In 2016 and 2017, a bill and a constitutional amendment working towards reducing the sales tax on food were considered by the Kansas legislature.

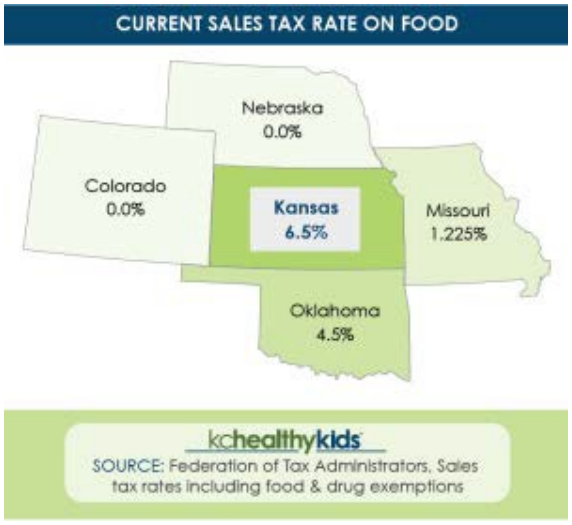


Figure 5: Current Sales Tax Rate on Food, KC Healthy Kids, 2016

FOOD INSECURITY

For a significant number of Douglas County families, the American standard of "three meals a day" is far from guaranteed. While some experience hunger, increasing attention has been paid to the condition of food insecurity, in which a family lacks certainty and consistency when it comes to their daily meals.[vi] **Food insecurity does not arise from a lack of available food, but rather from poverty and inequitable distribution of the financial resources needed to purchase the available food.** Our first food system assessment explored levels of food insecurity, pointing out the economic impacts that result from healthcare costs (often paid for by public funds) and the significance that food insecurity can have on student success and preparation for participation in the workforce.

At the national level, rates of household food insecurity increased sharply with the onset of the economic recession, and have remained elevated since that time. Only since 2012 have the national rates of food insecurity begun to decrease slightly. In Kansas, rates of food insecurity exceeded national rates prior to the onset of the 2008

recession, and increased further with the recession's onset. Although national food insecurity rates appear to have decreased slightly in recent years, rates in Kansas have been slower to decline.

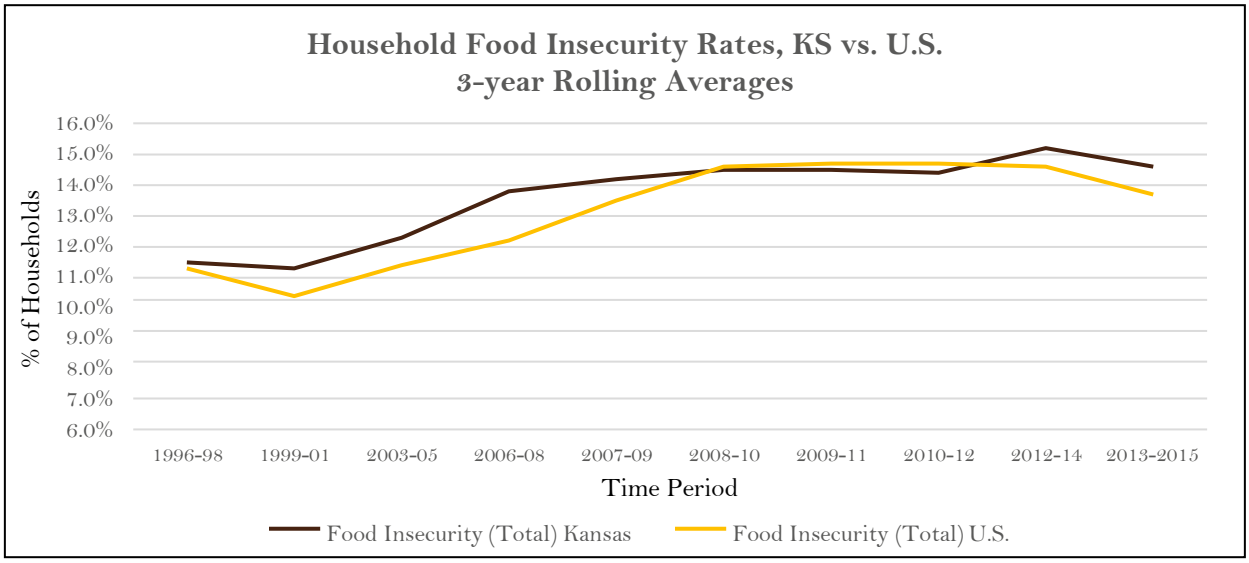


Figure 6: Data Source: USDA ERS analysis of annual CPS Food Security Surveys

County-level food insecurity rates have been estimated by the national food assistance organization Feeding America using a statistical modeling method. The most recent estimates indicate that approximately 17 percent of Douglas County residents (19,000 individuals) were food-insecure in 2015. More than one in five children (18.6 percent, or 4,030 children) in Douglas County lived in food insecure households. In comparison to other counties in Northeast Kansas, overall rates of food insecurity in Douglas County are among the highest in the region, exceeded only by Wyandotte County. Estimated rates of food insecurity among Douglas County children compare more favorably, nearly the same as the regional average and ranking Douglas County as the 6th lowest rate among the 16-county region.

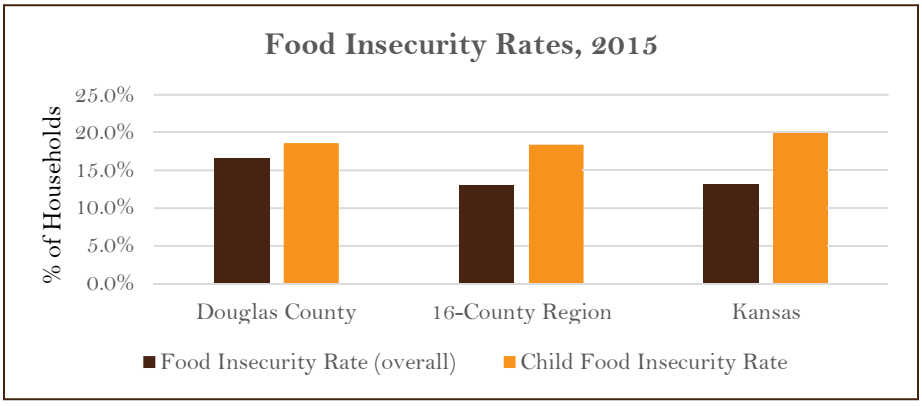


Figure 7: Source: County-level estimates of Food Insecurity from Feeding America, Map the Meal Gap

WHO FACES FOOD INSECURITY? CHARACTERISTICS OF FOOD-INSECURE HOUSEHOLDS AND VULNERABLE SUB-POPULATIONS

It should come as no surprise: some groups in our community are disproportionally burdened by food insecurity. Both the Community Health Plan and the Arts & Cultural Plan have identified the influence of equity, economic opportunity, and social connectedness on health.

Common demographic characteristics associated with higher risk of food insecurity include:

- Low household incomes
- Lower educational attainment by the head of the household
- Minority race or ethnicity of the householder
- Single-parent household status
- Poor health status or disability of the householder
- Social isolation

Lower risks of food insecurity exist among families with more financial stability, such as home ownership, longer housing tenure (the amount of time a family has resided in the same home), and households that include senior citizens.

At the community level, the following factors relate to the risk of household food insecurity:[vii]

- Access to quality jobs
- Affordable housing
- Access to health insurance or affordable healthcare services
- Access to food assistance programs
- Tax policies
- Welfare policies
- The social context of the community

Food Insecurity Rates by Household Characteristics, Kansas, 2011-2013

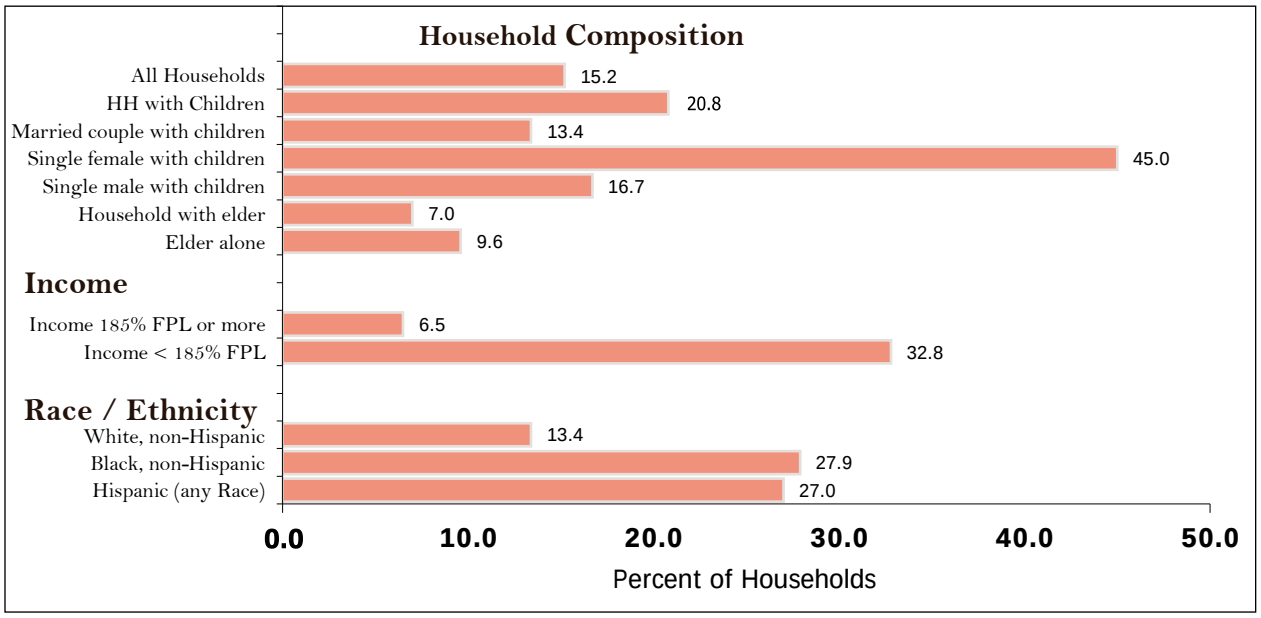


Figure 8: Source: Kansas Health Institute, 2015. Rates calculated using data from the 2011 through 2013 December Current Population Survey, Food Security Supplements. FPL means "Federal Poverty Level."

Employment Status of Food-Insecure Households

Nationally and in Kansas, the majority of food-insecure households are working households. During 2013, more than two-thirds (68 percent) of food-insecure households in Kansas included at least one full-time worker.[viii] More than half (54 percent) of U.S. households that sought assistance from food pantries or emergency meal programs during 2014 reported having at least one member that had worked for pay during the previous 12 months.[ix] These results are consistent with previous studies,[x] and suggest that many food-insecure families are trying to support themselves by working, but have earnings that are not adequate to support their basic needs.

Racial Disparities

The legacy of racial discrimination and lack of wealth in minority communities in the United States are well documented. Rates of food insecurity among minority households reflect the disparities in income and wealth. In Kansas, both black and Hispanic residents are twice as likely as their white neighbors to face food insecurity.

Gender Disparities

Among the household characteristics that are associated with increased risk of food insecurity, households headed by single females with children far outweighs the others. Nearly one half of all single mothers in Kansas face food insecurity. This finding is particularly troubling when compared to single males with children—who face food insecurity at a third the rate.

Throughout society women face a persistent wage gap—particularly in Kansas, where full-time women make 79 cents to the dollar compared to men (the rate is 80 cents in Douglas County).[xi] Childcare costs exceed in-state tuition and can account for 31% of the median female income, resulting in a challenging balancing act when on a limited budget. These economic constraints can lead to food insecurity, as income that might be used to buy food must be used to pay for other basic needs. In Douglas County, women participate in the labor force at a slightly lower rate than men: 67.9% vs 71.6%, and earn about $10,000 less than the median male income of $48,000.

Food Insecurity among Children

Studies and analyses of food insecurity have consistently shown that households that include children are approximately twice as likely to be food-insecure as childless households. When the household is headed by a single parent, the risk for food insecurity is even greater. The most recent national estimates from the USDA show that 20.8 percent of all Kansas households that included children under 18 years of age experienced food insecurity between 2011 and 2013.[xii]

Food Insecurity among Seniors

Although data from the Current Population Survey's Food Security Supplement have consistently shown that households comprised of seniors (age 60 years and up) experience food insecurity at much lower rates than younger households, food insecurity among seniors remains a cause for concern. Food insecurity among seniors has been shown to be associated with higher rates of health problems and chronic diseases such as elevated cholesterol, diabetes, hypertension, and heart disease.[xiii] Sample sizes from the national survey are too small to produce reliable estimates of senior food insecurity rates at the state or local level. The 2014 rates of food insecurity among seniors were the highest that had been observed since annual measurement first began in 1995.

Rates of Food Insecurity among Elderly-Only Households, U.S., 2005-2015

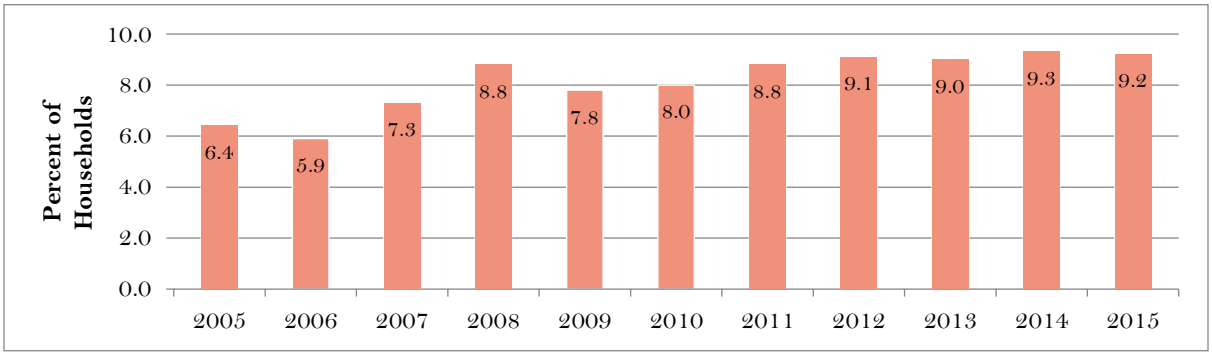


Figure 9: Source: Data published by USDA, Economic Research Service, annual reports on Household Food Security in the United States

Food Insecurity Among College Students

In recent years, reports of food insecurity among college students have appeared with increasing frequency.[xiv] In the limited number of published research studies that are available, researchers found rates of food insecurity among college students ranging from 20 to 60 percent.[xv] A 2014 national study of clients assisted through the Feeding America network of affiliate food pantries reports that approximately 10 percent of the 46.5 million adults served were students.[xvi]

In Kansas, at least three of the state universities have conducted campus-based assessments of rates of food insecurity among students;[xvii] at least nine college campuses in Kansas have established on-campus food pantries or food closets to assist food-insecure students.[xviii]

As a county with three universities, students make up a significant portion (26%) of the Douglas County population. Still, no data currently exists about rates of food insecurity among students at the University of Kansas, Haskell, or Baker. A KU senior conducted a student survey to collect data on this subject, working with the organization KU Fights Hunger; public release of the data was not available at the time of this report. The KU campus does have a food pantry, created for and by KU students, and works in food collection/recovery activities in collaboration with Just Food and the Lutheran Campus Ministries.

PUBLIC ASSISTANCE TO EXTEND FOOD BUDGETS

The Federal Government administers a number of programs designed to assist low-income families in obtaining adequate amounts of nutritious foods. Among the largest and best-known programs are the National School Lunch Program, the Supplemental Nutrition Assistance Program (SNAP, formerly called Food Stamps), and the Women, Infants, and Children (WIC) Supplemental Nutrition Program.

THE NATIONAL SCHOOL LUNCH PROGRAM

The National School Lunch Program (NSLP) operates in public and nonprofit private schools and residential child care institutions. It provides nutritionally balanced, low-cost or free lunches to children each school day. Children from households with annual incomes less than 130 percent of the Federal Poverty Level ($31,980 for a family of 4 in 2017) are eligible for free meals, children from households where incomes are between 130 and 185 percent of the poverty level are eligible to purchase meals at reduced prices.

THE SUPPLEMENTAL NUTRITION ASSISTANCE (SNAP) PROGRAM

In this program, monthly benefits are distributed in the form of credits to an electronic debit card; those benefits can be used to purchase foods for home use from approved food retailers. To be eligible for SNAP benefits, households must have incomes that are less than 130 percent of the Federal Poverty Level; additional eligibility restrictions may apply to working-age adults without children. Benefits are loaded onto cards in the first 10 days of the month, based upon an alphabetical listing of last names.[xix] The average benefit is about $130 per month.

In Kansas, and in Douglas County, the number of persons receiving SNAP benefits increased during the recessionary period, peaking with an average of 8,890 Douglas County residents receiving SNAP benefits each month during State Fiscal Year 2013. Since that time, the number of participants has declined to 6,932 in SFY 2016. This decline may not be indicative of decreasing levels of need, however, as other indicators of need such as the percent of school children who are eligible for free or reduced price school meals have not seen comparable declines. The State of Kansas implemented a number of policy changes between 2013 and 2015 that tightened the program's eligibility requirements, and these changes may explain the decreases in the number individuals receiving assistance through the SNAP program.[xx] A substantial number of individuals and families who would be eligible for SNAP benefits do not participate in the program. This may be due to many factors, including stigma associated with participation, confusion over eligibility requirements, and burdensome application processes. The LiveWell Lawrence Healthy Food for All coalition is working to increase SNAP enrollment and address barriers to accessing these benefits that support access to healthy foods. Harvesters has also worked throughout the region to increase SNAP enrollment

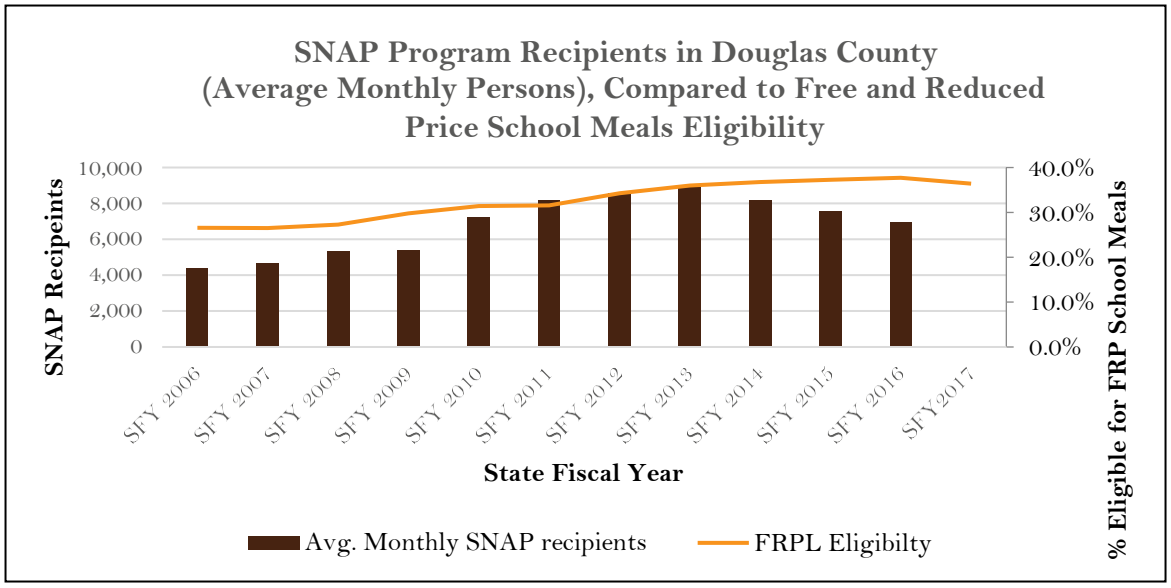


Figure 2: Data Sources : SNAP Participation from Kansas Department of Children and Families, Annual County Packet Reports. Free and Reduced Price School Meal eligibility from the Kansas State Department of Education, K-12 Statistics.

DOUBLE UP FOOD BUCKS: IMPROVING ACCESS WHILE HELPING FARMERS

In the first assessment, we recognized that while families struggle to access fresh, affordable foods, family farmers often struggle to earn a living wage and keep their farms profitable. (For more on farming, see the Production section.) At the time, some farmers' markets, including the Lawrence Farmers' Markets, had recently begun accepting food stamps at market. We wondered how these two seemingly divergent issues might be reconciled.

The Double Up Food Bucks program may provide an answer. This program creates a win-win-win for SNAP users, farmers, and area farmers markets, by providing matching dollars for purchases of fresh fruits and vegetables made at participating Farmers' Markets with SNAP benefits. The matching incentive, up to $25 extra dollars per day, encourages low-income consumers to purchase fresh, locally-grown foods and expands their purchasing power with the matching funds.

In 2014, the Douglas County Food Policy Council in partnership with LiveWell Lawrence obtained funding to launch the program, originally called Market Match. During 2015, six Farmers' Markets in Kansas were participating in the Market Match program; two of those markets were in Douglas County: Lawrence Farmers' Market and Cottin's Hardware Farmers' Market. In 2016, Douglas County partnered with regional partners in Kansas City and the national non-profit Fair Food Network, who launched the original matching program in Michigan in 2009 to create the Double Up Food Bucks Heartland Collaborative.[xxi] Through a $5 million dollar grant from the USDA Federal Nutrition Service, Douglas County will partner with farmers' markets and rural grocery stores across the state to expand the program, better serving farmers, low-income consumers, and their communities. By 2018, the program will be available in 68 farmers markets and 117 grocery stores in Kansas and Missouri. With this program expansion, we hope more consumers will access fresh, locally-sourced food from Farmers' Markets using their SNAP benefits.

WOMEN, INFANTS AND CHILDREN (WIC) SUPPLEMENTAL NUTRITION PROGRAM

Given the importance of good nutrition during pregnancy and early child development, the WIC Program has been developed to support access to nutritious foods during these critical periods of growth and development. The WIC program serves low-income infants and children under the age of 5, and pregnant, nursing and postpartum women. It provides vouchers which can be redeemed at participating grocery stores for specific food items. Between, 2008 and 2012, Douglas County saw an 18% increase in WIC benefit redemption, with total redemption valued at $1,174,697 in 2012.

LOCAL SPENDING FROM PUBLIC FOOD ASSISTANCE PROGRAMS

Many low-income households rely upon benefits received from federally-sponsored nutrition programs that are designed to help families to be able to afford to purchase the food that they need. These program benefits infuse money into the local economy as the program recipients spend their benefits at local grocery stores or farmers' markets. The two largest assistance programs are the Supplemental Nutrition Assistance Program (SNAP), and the Supplemental Nutrition Program for Women, Infants and Children (WIC). The SNAP program provides participants with monthly deposits of credits to an electronic benefit card, which can be used to purchase foods for home use. The WIC program provides participants with vouchers which can be redeemed for specific food items at participating grocery retail outlets. Combined, the two programs infused a total of more than $15 million into the Douglas County retail grocery sector during 2012.

The trend from 2012 to 2016 in SNAP expenditures in Douglas County shows that the number of stores rose from 44 to 55 stores in 2012 to 2013 respectively. From that point until 2016, the number of stores remained steady at 57 stores approximately. From 2013 to 2016 the total SNAP redemptions has declined, in keeping with the trend of decreasing numbers of SNAP recipients in the county. From a high point in 2012, the total SNAP redemptions in Douglas County have declined to $9,281,640 in 2016.

Expenditures from Government Food Assistance Programs in Douglas County (2012)	
	DG County
SNAP-authorized stores, 2012	44
Average SNAP redemptions/SNAP-authorized stores, 2012	$318,717
Total SNAP redemptions, 2012	$13,997,000
WIC-authorized stores, 2012	13
Average WIC redemptions/WIC-authorized stores, 2012	$90,361
Total WIC redemptions, 2012	$1,174,697

Table 2: Data Source: USDA Food Environment Atlas (2012)

PRIVATE ASSISTANCE: FOOD BANKS AND PANTRIES

Food-insecure families who are not eligible for federally-sponsored food assistance programs must rely upon help from private-sector food assistance agencies such as Just Food in Lawrence, other food pantries affiliated with the Harvesters/Feeding America network, or faith-based programs. During fiscal year 2016 (July 1 2015 – June 30 2016), the regional food bank Harvesters and their 25 partner agencies distributed 958,838 pounds of food to Douglas County community members. Just Food, the local food bank, distributed 887,164 pounds of food in 2016, serving 11,274 unique individuals.

The food distributed by these private assistance organizations came from a variety of sources, including donations from grocery stores, restaurants, and individuals. Food banks also purchase some foods for distribution to their clients. The first food assessment asked how gleaning—harvest of safe, surplus field crops without a market—could divert additional foods into homes in need. Since 2009, Just Food has worked with the Lawrence Farmers' Market to glean additional produce at the end of market days. In 2016, the food bank formed a partnership with the Kansas City-based gleaning non-profit, After the Harvest, to further expand this facet of its food recovery. The LiveWell Lawrence Healthy Food for All working group has been spearheading an initiative to promote healthier food options in local pantries.

For community members who lack the financial resources to purchase food at retail grocery stores, the ability to physically access food assistance agency locations is also an important consideration. As part of this assessment, the Lawrence-Douglas County Health Department worked with local partners to determine the geographic distribution of food pantries in Douglas County, and variation in services and times. By aggregating this information across multiple local providers, the community can better understand what gaps exist in existing services to families in need.

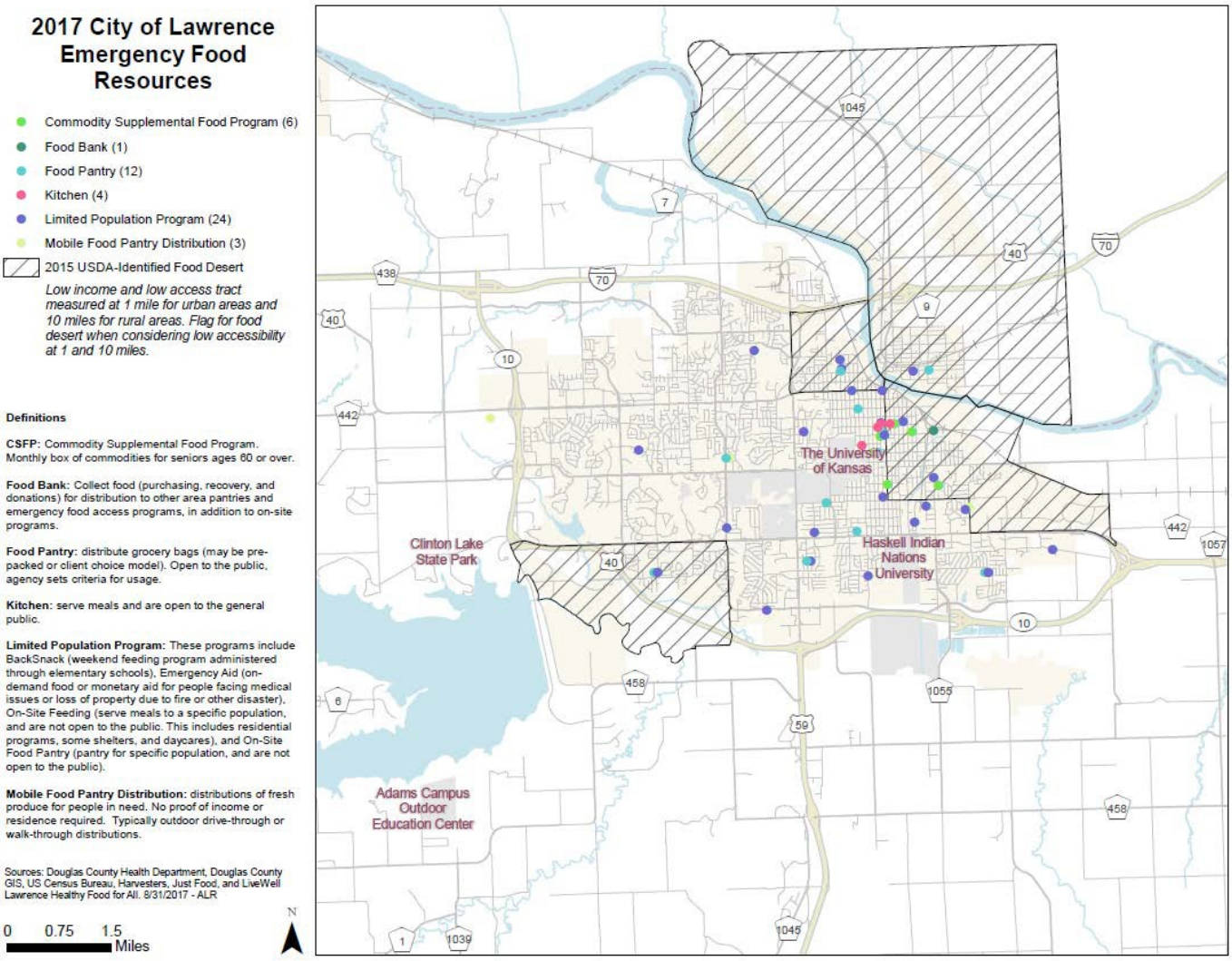


Figure 3: Food Banks & Pantries in Lawrence, 2017, Local Data from Just Food and Harvesters.

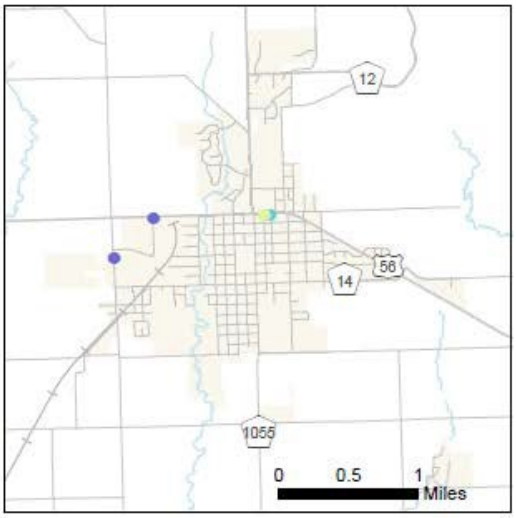
2017 Emergency Food Resources (other cities)

Definitions

Food Pantry: distribute grocery bags (may be pre-packed or client choice model). Open to the public, agency sets criteria for usage.

Limited Population Program: These programs include BackSnack (weekend feeding program administered through elementary schools), Emergency Aid (on-demand food or monetary aid for people facing medical issues or loss of property due to fire or other disaster), On-Site Feeding (serve meals to a specific population, and are not open to the public. This includes residential programs, some shelters, and daycares), and On-Site Food Pantry (pantry for specific population, and are not open to the public).

Mobile Food Pantry Distribution: distributions of fresh produce for people in need. No proof of income or residence required. Typically outdoor drive-through or walk-through distributions.



N

Baldwin City

- Food Pantry (1)
- Limited Population Program (2)
- Mobile Food Pantry Distribution (1)

Eudora

- Food Pantry (1)
- Limited Population Program (1)
- Mobile Food Pantry Distribution (1)

Lecompton

- Food Pantry (2)
- Limited Population Program (1)
- Mobile Food Pantry Distribution (1)

Sources: Douglas County Health Department, Douglas County GIS, US Census Bureau, Harvesters, Just Food, and LiveWell Lawrence Healthy Food for All. 8/16/2017 - ALR

CULTURALLY APPROPRIATE FOOD

Families' access to culturally appropriate foods is something that cannot be determined through existing public-use data sets. This issue may be highly variable at the local level, and often, case-by-case instances. Internal policies of local emergency food operators and large food service institutions such as schools and hospitals, can take the lead in working with those they serve to make sure the foods they offer are appropriate to the ethnic and cultural background, plus dietary needs, of their constituents. Community food coalitions, like the Food Policy Council and other groups that work across institutional boundaries, play an important role in identifying culturally-specific needs and helping to provide access to the culturally appropriate food.

ENDNOTES

[i] *Wichita Food Deserts: Why We Should Care.* Health and Wellness Coalition of Wichita, Winter 2013.

[ii] Stewart H, Hyman J, Carlson A and Frazao E. *The Cost of Satisfying Fruit and Vegetable Recommendations in the Dietary Guidelines.* U.S. Department of Agriculture, Economic Research Service. Economic Brief Number 27, February 2016.

[iii] Pesch and Keeler, 2015 http://www.mfma.org/files/840.pdf and Flaccavento, 2011 http://www.ruralscale.com/resources/farmers-market-study

[iv] Kriz, K. *The effect of the inclusion of groceries in the sales tax base on rural grocery stores.* KC Healthy Kids. Available at http://www.kchealthykids.org/3-part-series-kansas-damaging-grocery-tax/, last accessed 03/17/16; Srithongrung, A. *Sales tax rate differentials and cross-border shopping.* KC Healthy Kids, http://www.kchealthykids.org/3-part-series-kansas-damaging-grocery-tax/, last accessed 03/17/16.

[v] KC Healthy Kids http://www.kchealthykids.org/3-part-series-kansas-damaging-grocery-tax/

[vivi] USDA defines food insecurity as "a household-level economic and social condition of limited or uncertain access to adequate **food**." https://www.ers.usda.gov/topics/food-nutrition-assistance/food-security-in-the-us/definitions-of-food-security.aspx

[vii] Bartfeld, J & Dunifon, R. *State-Level Predictors of Food Insecurity and Hunger Among Households With Children*, Contractor and Cooperator Report No. 13, U.S. Department of Agriculture, Economic Research Service, October 2005, www.ers.usda.gov/publications/ccr13/; Bartfeld, J, Dunifon, R., Nord M. & Carlson S. *What Factors Account for State-to-State Differences in Food Security?* U.S. Department of Agriculture. Economic Information Bulletin No. 20, November 2006; Bartfeld J & Wang L. Local-Level Predictors of Household Food Insecurity. Institute for Research on Poverty, Discussion Paper No. 1317-06. August 2006. www.irp.wisc.edu. Last accessed 2/3/2012; Tapogna, J., Suter A., Nord M. & Leachman, M. *Explaining Variations in State Hunger Rates.* Family Economics and Nutrition Review, 16:2, pp.12-22, 2004.

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CONSUMPTION

INTRODUCTION

Good nutrition is a fundamental prerequisite to health and vitality. A diet rich in nutrient-dense foods provides the energy needed to fuel the human body and essential nutrients to maintain health. Poor dietary habits have been associated with a number of chronic diseases and health conditions including obesity, diabetes, cardiovascular disease and some types of cancer. The most recent (2015) dietary guidelines from the U.S. Department of Health and Human Services suggest that a healthy diet is one that includes a variety of fruits and vegetables, whole grains, fat-free or low-fat dairy and lean proteins while limiting consumption of saturated fats and *trans* fats, added sugar and sodium.[i]

These guidelines are less proscriptive than previous versions in terms of the specific amounts or numbers of servings of various types of food should be eaten. Instead, the focus is on the **overall dietary pattern**—which also speaks to cultural influences. This shift emphasizes that foods are not consumed in isolation, but rather in various combinations over time—an "eating pattern." **An eating pattern may be more predictive of overall health status and disease risk than individual foods or nutrients.**

Education alone is seldom sufficient to persuade people to change their habits and lifestyles. Most consumers have at least some awareness of and familiarity with dietary guidelines for healthy diets. However, if healthy and local food options are not readily available, accessible, convenient or affordable in the community, maintaining healthy eating behaviors and supporting a local food system can be more difficult. The factors that shape our food environment and influence eating choices range from obvious to quite subtle:

- The physical availability to access food
- Where various stores and food outlets are located
- The pricing of healthy or local food offerings
- Product placement on store shelves
- Plate size in restaurants
- The words used to describe a menu offering

Each of these factors, and many more, all come into play as consumers select the food that they eat.[ii]

Even when consumers are well-intentioned and trying to maintain healthy diets, a barrage of subtle and not-so-subtle cues and messages in the food environment may derail their good intentions. Factors as varied as product placement and pricing, the words used to describe a menu offering, and ambient lighting in the dining environment have all been shown through research to influence eating choices and behaviors.[iii]

The first Douglas County food system assessment did not focus on the health implications of the foods we eat. However, around the same time the Lawrence-Douglas County Health Department conducted a Community Health Assessment, including surveying and holding focus groups with residents about their health. The results provided a focus on access to healthy foods and economic opportunity as key to improving health.[iv] (An updated CHA was in development as this report was being finalized.)

WHAT WE EAT

It's not new news that across the board—from Douglas County, to Kansas, to the United States: we need to eat more fruits and veggies! The types and amounts of foods consumed influence overall health and the development of some chronic diseases. A healthy diet includes a variety of fruits, vegetables, whole grains, and low-fat protein, all in appropriate amounts. As found in the first food system assessment, national studies consistently show that the diets of most Americans are not well-aligned with current dietary recommendations (see Figure 1 below). Typically, Americans consume more meats, total grains, sodium, added sugars and saturated fats than are recommended, but fall short on the amounts of fruits, vegetables, whole grains and dairy products eaten.

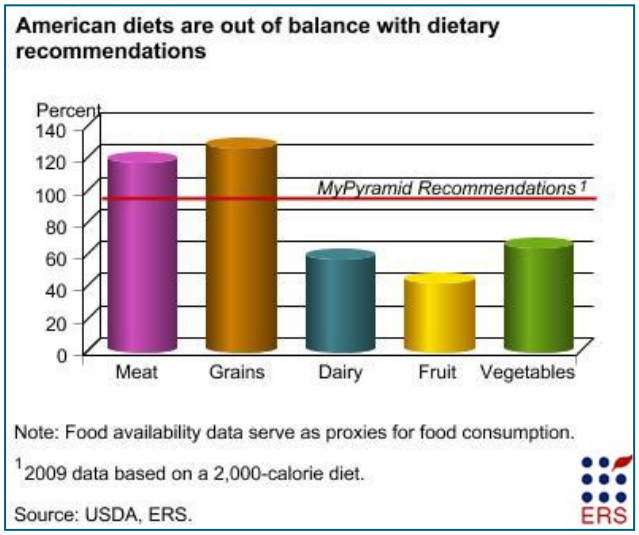
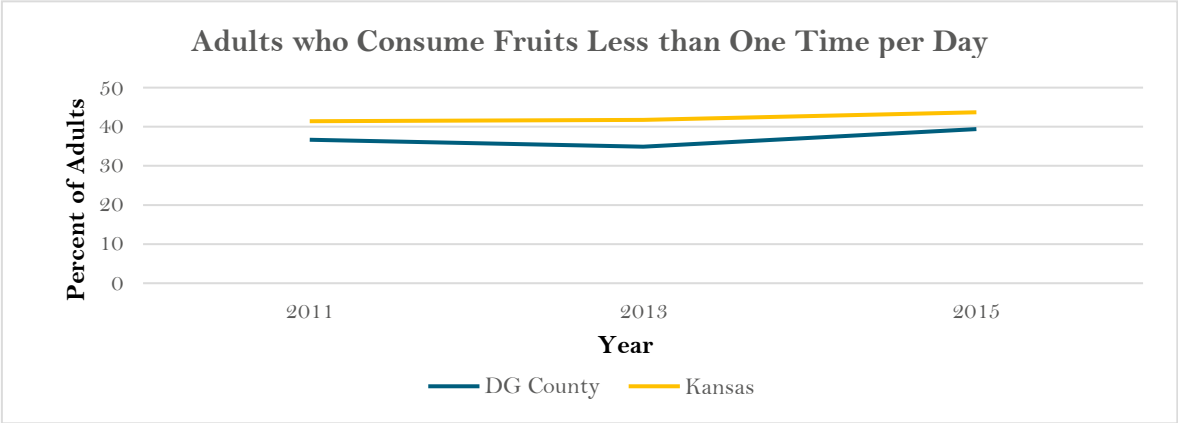


Figure 1: Source: USDA Economic Research Service, https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=75133

Results from 2015 show that approximately 18 percent of Douglas County adults eat vegetables less often than one time per day, and nearly 40 percent do not eat fruit at least once a day. While concerning, the Douglas County rates are more positive than those of most counties in the 16-county region, and the statewide rates (on these measures, *lower* rates are more positive).



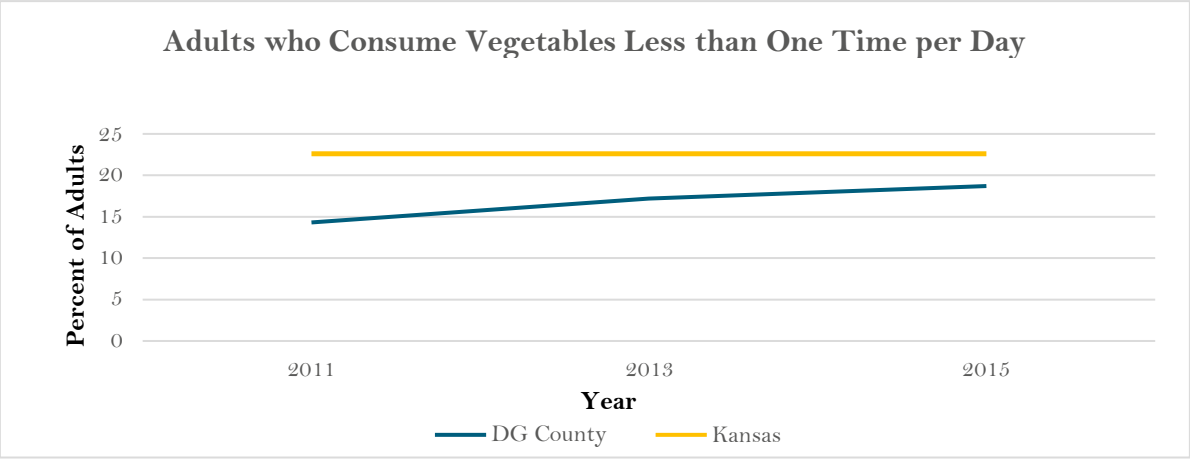


Figure 2: Data Source: Kansas Department of Health and Environment, Behavioral Risk Factor Surveillance System

WHERE WE EAT

FOOD AT HOME

Consumer expenditure data also provide some insight as to how consumers spend their food dollars for home consumption. As found in the first food system assessment, these estimates suggest that Douglas County residents are spending the largest share (nearly 42 percent) of their grocery budgets on "other foods" which may include snacks and prepared/processed foods. Only 17 percent of their budgets are spent on fruits and vegetables. Spending patterns in Douglas County are very similar to those across the 16-county Northeast Kansas region and to Kansas as a whole. In understanding this expenditure data, it is important to note that given different price ranges for product categories, the Food at Home pie chart expenditure proportions may not fully reflect the **amount** of food obtained with each budgetary portion (for more detail on foods included in each category, see the Appendix).

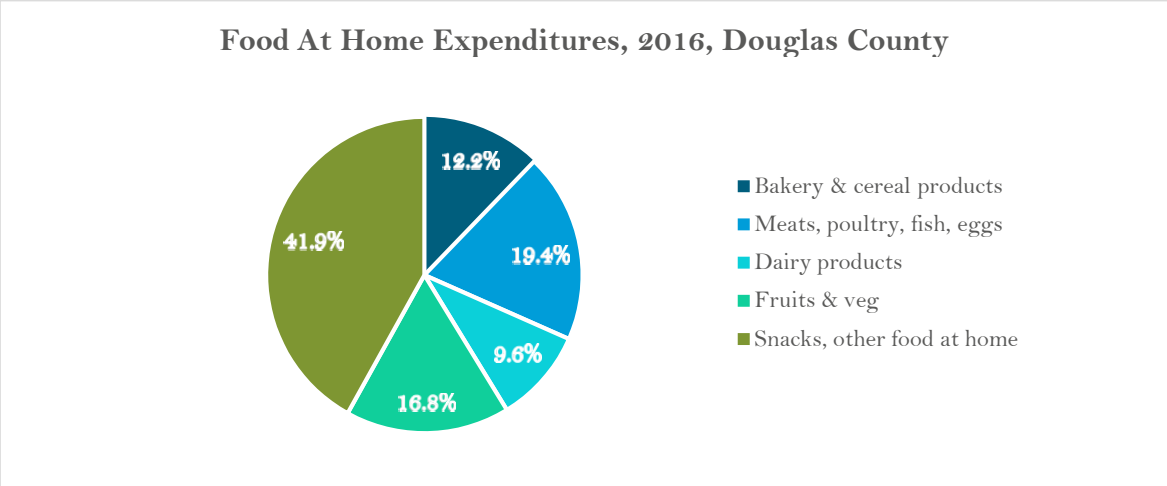


Figure 3: Data source: Business Decision Database, Retail Goods and Services Expenditures, www.civictechnologies.com .

FOOD AWAY FROM HOME

National trends show that foods prepared away from home play an increasing role in American diets. In 1970, approximately 26 percent of all food spending was on food away from home. By 2012, that share had increased to 43 percent. A number of factors likely contribute to this increase, including increases in the number of women employed outside the home, higher incomes of two-earner households, affordability and convenience of foods offered by fast food outlets and increased advertising and marketing. (And, as a result, a loss of knowledge and skills to prepare food at home—reinforcing the cycle.)

While the location in which individuals dine or food is prepared does not necessarily have a strong relationship to health, research from the U.S. Department of Agriculture has shown that meals and snacks prepared outside of the home setting contained more calories, and were higher in the nutrients that Americans overconsume (fat, saturated fat, cholesterol and sodium) than foods prepared at home. Foods prepared away from home often lacked important nutrients that Americans under-consume, such as calcium, fiber and iron.[v]

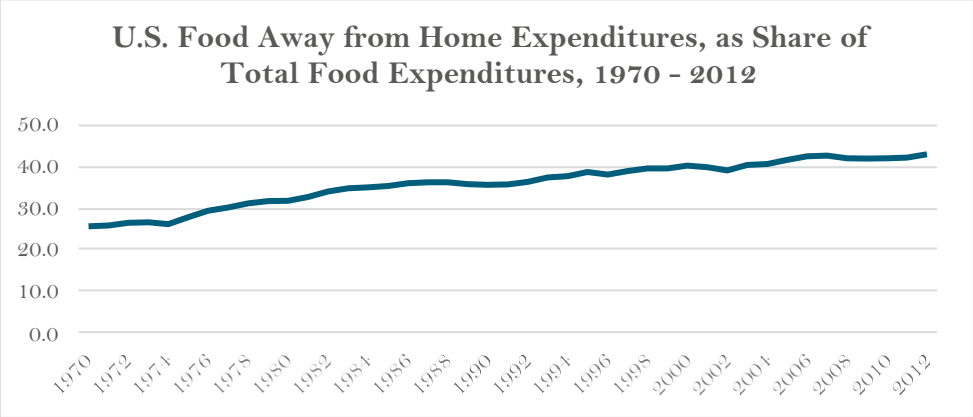


Figure 4: Source: USDA Economic Research Service, http://www.ers.usda.gov/topics/food-choices-health/food-consumption-demand/food-away-from-home.aspx

At the local level, consumer expenditure data can be used to track spending on food. Results for Douglas County, the 16-county Northeast Kansas region and the state are shown in the chart below. Estimates of annual food expenditures per household are somewhat lower in Douglas County than the regional or state averages, but the proportion of spending for food at home versus food away from home is nearly the same for each group with approximately 39 percent of total food spending on food prepared away from home.

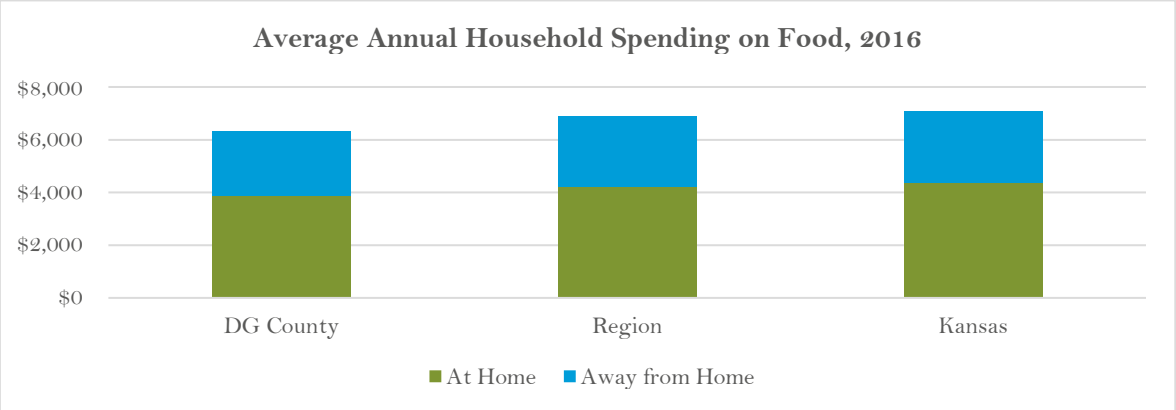


Figure 5: Data source: Retail Goods and Services expenditure estimates, obtained from the Business Decision data system, www.civictechnologies.com

DOES HEALTHY FOOD COST MORE?

Cost is often cited as a reason for low levels of fruit and vegetable consumption, including in the Community Health Assessment for Douglas County. (See the Access section for more on food affordability.) The first assessment showed that lower-income consumers spend a greater proportion of their income on food than wealthier households (by as much as twice the average percentage!)[vi].

A recent study from USDA assessed the costs of satisfying fruit and vegetable consumption levels recommended by the 2015-2020 Dietary Guidelines. [vii] The researchers estimated that an adult on a 2,000 calorie per day diet could *technically* achieve a balanced diet—at a cost of $2.10 to $2.60 per day, or 42% of the model low-income food budget. We wanted to understand how this expense compared to the current spending habits of Douglas County residents, knowing what we do about the distribution of spending by food category above.

Expenditure estimates from the Business Decision system show that Douglas County residents currently spend a total of $6.57 per person per day on food, including purchases of food prepared away from home. Estimated current spending for purchases of fruits and vegetables is 76 cents per person per day.

DG County Population, 2015	**116,585**
Total DG County Food Spending 2016	$282,957,110
Total Annual food spending per capita	$2,427
Total Daily food spending per capita	$6.57
Total spending on fruits and vegetables (at home)	$32,603,958
Total annual fruit and vegetable spending per capita	$280
Daily per capita spending on fruits and vegetables	**$0.76**

Table 1: Data source: Expenditure data from the Business Decision system, Retail Goods and Services Expenditures. Population data from U.S. Census Bureau, American Fact Finder, Annual Estimates of the Resident Population

While the estimations of the USDA demonstrate that healthy fruit and vegetable purchasing may be possible on a low-income budget, it does not address how easy or realistic the dietary budget model would be for a real family. Local food access and availability, based upon types of stores or what's on the shelves, may not reflect the prices that made the model work. Purchasing larger sizes or quantities often results in cost savings, but may not be possible for a low-income family wanting to eat healthy within limited resources.

Beyond considering a family's budget, other commonly cited barriers to healthy food access include a lack of time and skills for food preparation, and perishability of fresh produce. In addition, experimenting with what may be unfamiliar foods, especially for children, may be a luxury that some families cannot afford.

OBESITY AND OVERWEIGHT RATES

When the calories contained in foods that are consumed exceed the calories burned by the body, weight gain is the result. When the weight gain becomes excessive, the term 'obesity' is used to describe the condition. Obesity is often the result of two related issues:

1) Consumption of excessive calories
2) Inadequate physical activity

Obesity is a health concern because it is known to be associated with increased rates of many chronic health conditions such as diabetes and hypertension, as well as a contributory factor to some joint problems and physical disability. Nationally, and in Kansas, rates of obesity among adults and children have been rising steadily since the 1960s.[viii] Rates of overweight and obesity among Douglas County residents are somewhat lower than the

statewide rates. Between 2009 and 2013, the rate of obesity among Douglas County adults dropped from 28.4 to 20.3 percent, but then increased again to 27.5 percent in 2015.

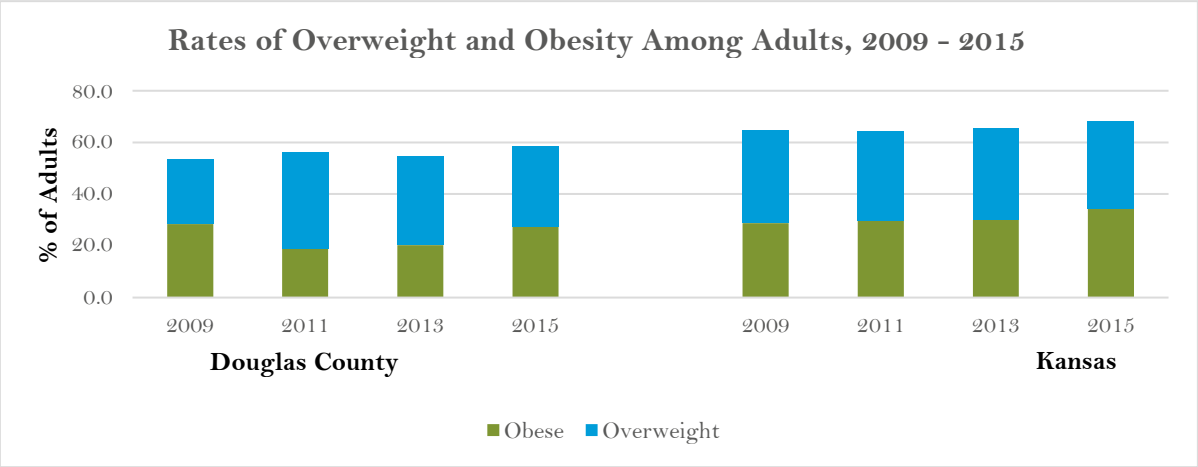


Figure 6: Data Source: Kansas Department of Health and Environment, Behavioral Risk Factor Surveillance System

While the rates of obesity in the United States have led public health officials to describe an "epidemic" or "health crisis," others have also urged caution in how we talk about obesity. The issue can at times be over-simplified to focus on an individual's behaviors, looking at cause and effect or self-control. There is growing understanding that obesity is a complex issue and that body size may not equate with personal health. As well, recent studies call in to question whether BMI (body mass index) percentages are the best markers of health[ix]. The "food environment" and other cultural factors also influence one's likelihood to become obese. Physical activity, exposure to chemicals in the environment, and genetics can also influence weight. What's more, the conversation can lead to unproductive "shaming" and social discord that does not positively relate to health promotion—especially for children. It is important to remember that weight level is only one consideration when it comes to personal health.

ENDNOTES

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[vii] Stewart H, Hyman J, Carlson A and Frazao E. *The Cost of Satisfying Fruit and Vegetable Recommendations in the Dietary Guidelines.* U.S. Department of Agriculture, Economic Research Service. Economic Brief Number 27, February 2016.

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FOOD WASTE & RECOVERY

INTRODUCTION

Recently, increasing attention has been given to the question of what happens to the food that we *do* grow, but *don't eat*. Too often, that food gets wasted. National estimates suggest that as much as 40 percent of all food produced in the United States is wasted. In fact, food waste occurs at each step in the food chain. The amount of waste varies by the type of product, ease of transportation, perishability, and method of use.[i] Food waste is an international concern.[ii]

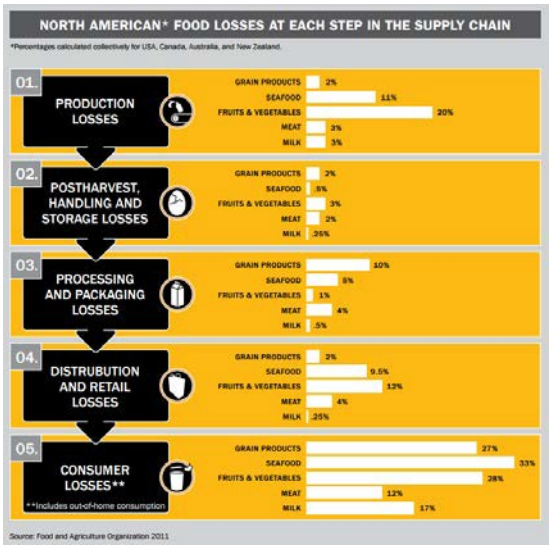


Figure 1 North American Food Losses by Site. Information from https://www.nrdc.org/sites/default/files/wasted-food-IP.pdf and United Nations Food and Agriculture Organization.

Food waste occurs on the farm with unharvested crops or in processing, distribution and retail. A farmer may leave a crop in the field if he or she lacks labor help to harvest, doesn't have a market to profitably sell the harvest into, or if the color, size, or shape of the harvest fails to meet the standards of buyers. National estimates suggest that 20% of fruit and vegetables grown remain in the field as waste, often reincorporated into the soil—with an additional 12% wasted in distribution and retail.[iii] While some food waste also occurs in processing, distribution and retail sectors, the largest volumes of food waste occur at the consumer or household level. A number of factors contribute to household food waste, including confusion over date labeling, poor planning, impulse and bulk purchasing, misjudged food needs, and spoilage due to improper storage or poor visibility in the refrigerator.

Confusion over food donation laws and potential donor liability is another contributor to food waste. Many food businesses hesitate to donate their excess food because they fear that doing so will expose their enterprise to risk of liability for foodborne illnesses, allergen exposure, or other negative consequences for the ultimate consumers of recovered food. Fortunately, these fears are largely unfounded because both Federal and Kansas laws protect donors who donate food or food products in good faith to non-profit organizations.[iv]

The economic costs of food waste are substantial. When considering the total cost of food waste, it is important to also account for the *inputs* that were utilized to grow and produce the food. This can include a significant amount of water, chemicals (fertilizer, pesticides, etc.), fossil fuels in on-farm equipment, cooling, and transportation, and other scarce resources. As well, *outputs* from wasted food include pollution from anaerobic decomposition at landfills. When cities look to lower their carbon footprints, lowering their waste production helps to lower their greenhouse gas emissions.

FOOD WASTE IN DOUGLAS COUNTY

No local data exists to accurately estimate the total amount of food waste in Douglas County. Nationally, the USDA estimates that nearly 10% of the food a person purchases will end up uneaten. Drawing upon national estimates, we calculated an approximation for the level of food waste at the consumer level in Douglas County. The results were staggering:

Estimated level of consumer-level food waste in the United States and in Douglas County

	Pounds (annually)	Pounds (daily)	Value (annually)
Per-person basis (national)*	290	0.8	$371
County estimate**	32,730,560	90,291.2	$41,872,544

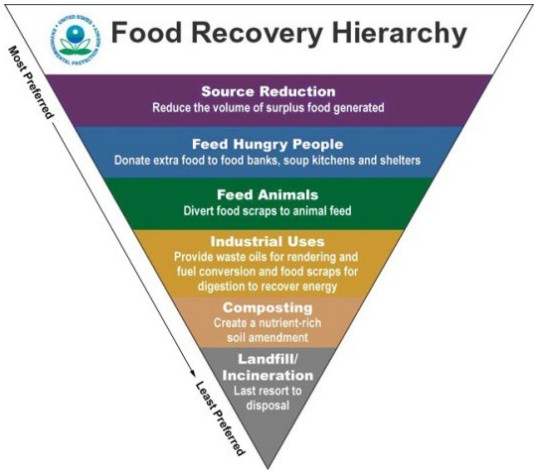
*National figures drawn from USDA, Economic Research Service, 2010 ERS Loss-Adjusted Food Availability and http://www.ers.usda.gov/amber-waves/2013-june/ers-food-loss-data-help-inform-the-food-waste-discussion.aspx#.VtCoJU32a72

**County population estimate based upon 2012 population estimate as found in the USDA Food Environment Atlas (112,864)

What does food waste at the consumer level mean? This can include the food left on the plate when eating out, the forgotten foods in the back of the refrigerator that went bad, or food scraps, the "inedible" parts of the foods you purchased—banana peels, meat bones, etc.

HOW DO WE ADDRESS FOOD W A S T E ?

The Environmental Protection Agency has established a first-ever national goal of reducing food waste by 50% by 2030.[v] The EPA created the "Food Recovery Hierarchy" to guide efforts to meet the goal, prioritizing the rescue of foods that remain suitable for human consumption. Of those foods that cannot be fed to humans—or even to livestock—composting presents an important way to re-introduce important nutrients into the soil and prevent the accumulation of food waste in our landfills—which can produce methane, a harmful Greenhouse Gas that contributes to Climate Change.



Although comprehensive numbers quantifying food recovery efforts in Douglas County do not exist, some organizations have made important leading steps to address the problem.

SOURCE REDUCTION

Minimizing the volume of uneaten food, called "Source Reduction," represents the first tier of addressing food waste. For restaurants, grocery stores, and cafeterias, conducting a waste audit could shed light upon areas where purchasing practices fail to properly meet consumer demand, leading to waste.

Assessing food waste often begins with assessing the current level and practices that happen. In 2015, Haskell University collaborated with the EPA Region 7 office to conduct food waste audits[vi]. Over six meals, they noted:

- 326 pounds of food and 36 gallons of drink, total
- 54 pounds of food and 6 gallons of drink, on average
- Carbohydrates were most common category of food wasted (43%)
- Water was most common drink wasted (42%)
- Students cited being full as their reason for not finishing everything on their plates.

This study reflects the waste that happens in a buffet-type setting, common to institutional cafeterias. A myriad of techniques can help to achieve source reduction, including shifting from buffet to meal purchases, smaller portion sizes, utilizing all edible foods in preparations, and buying or taking only the amount of perishable you know you will be able to eat while it is still good.

Source reduction also matters on the food production side of the food chain. Actions to support source reduction include ensuring farmers have viable markets for their products, that production planning matches demand, and working with specialty crop farmers on post-harvest handling and storage techniques to maximize quality and minimize spoilage between field and plate. Technological innovations, such as the "cool-bot" on-farm cooler, can help local growers to keep their produce at optimal temperatures for a longer after-harvest shelf life.

FEEDING HUNGRY PEOPLE

Just Food, the local food bank, works with area retail food outlets, farmers, and individuals to collect donations of food. In 2016, they helped over 11,274 unique individuals. Their rescue totals have grown in recent years as well:

- 2014: 339,262 pounds
- 2015: 799,682 pounds
- 2016: 887,164 pounds

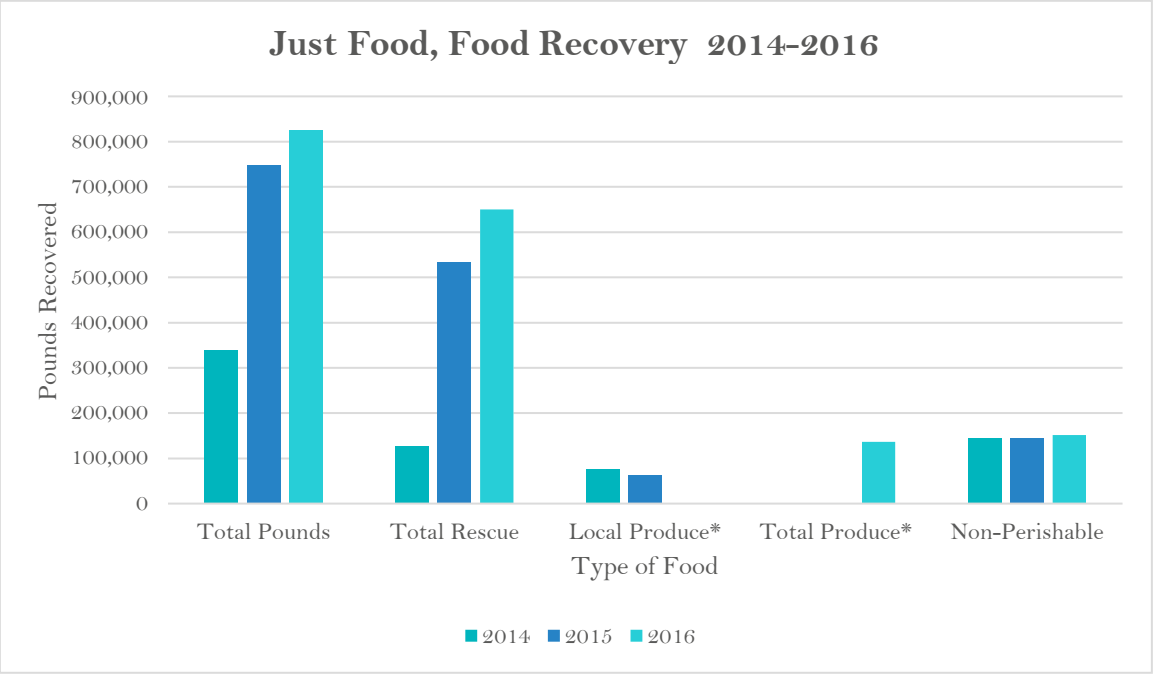


Figure 2. Data Source: Just Food. * Due to a change in the way statistics were recorded, local produce data is not available for 2016, and total produce data are not available for 2014 and 2015.

Of the 2015 total, local produce from area farmers and gardeners accounted for 63,570 pounds. However, a drop of more than ten thousand pounds of local produce occurred between 2014 and 2015. This deficit may be addressed going forward in 2016, as Just Food launches a collaboration with the Kansas City-based non-profit After the Harvest, to work with area farmers to conduct "gleaning," in which volunteers harvest extra produce in the field for donation. In 2016, After the Harvest received a total of 19,687 pounds of produce from Douglas County growers, and redistributed 12,643 pounds of produce to food assistance agencies in Douglas County. They also donated nearly 3.3 million pounds of produce to Harvesters, which redistributes food to many assistance agencies in Douglas County.

Both the general rescue and local rescue data in the chart above represent the results of local businesses participating in food recovery. HyVee has made particular impact through a working relationship it formed with Just Food in 2014, receiving a commendation from the LiveWell Lawrence Healthy Food for All community coalition.

INDUSTRIAL USES

Some types of food waste can be recovered and converted to substances that can be used in industrial applications. As one example, students at the University of Kansas have created the KU Biodiesel Initiative, a grassroots, student-run operation that produces biodiesel from used cooking oil generated on campus. Their goal is to meet the requirements of all KU's buses, landscaping and maintenance equipment, and power generators on campus with this renewable fuel.

COMPOSTING

Composting entails the breakdown of organic materials, including food scraps, into humus—a nutrient-dense component of healthy soil. Composting also aids in reducing greenhouse gases, as organic materials that breakdown in landfills produce greenhouse gases.[vii] Composting can help divert waste from institutional and commercial food service systems. Home composting offers benefits for home-gardeners but also reduces the amount of food waste that enters the municipal waste stream, benefitting the solid waste department of government.

A number of institutions and businesses in Douglas County, including the University of Kansas, work with the company Missouri Organic to compost their food waste. On the KU campus, Missouri Organics collects from the 3 residential dining halls, and all post-consumer waste from basketball and football games. Institutional composting is a complex set of processes but the local conversation is producing great strides in increasing the amount of materials that are composted. Locally, Hy-Vee grocery store took steps to begin composting post-consumer waste in its stores. Of those local institutions and businesses working with Missouri Organic, 1020 tons were diverted in 2016.

Larger-scale composting operations can breakdown a wider range of items than a home compost bin or pile. Paper scraps, soiled cardboard (such as pizza boxes), meats, and disposable plates or cups that qualify as "compostable" may all be composted, helping to further reduce material waste and fossil fuel waste, in addition to breaking down and reincorporating foods scraps. It is important to understand that while organizations and institutions are beginning to utilize compostable items (boxes, carry-out containers, cups and the like), these items must make it into the composting stream in order to see the benefits of composting. The process of post-consumer composting is complex and presents opportunities for improvements and further waste diversion.

Home composting can help citizens turn food scraps and food that has gone bad into a valuable and enriching garden soil amendment. In 1998, the City of Lawrence Solid Waste, Resource Recover and Waste Management Department began selling backyard composting bins to residents. Currently, they sell a bin called an Earth Machine for $40. Since 2008, the city has sold over 750 backyard compost bins to city residents, with another 39 given away.[viii] On occasion, too, the City has offered composting workshops to residents.

ENDNOTES

[i] National Resources Defense Council, Food Files. https://www.nrdc.org/issues/food-waste

[ii] Food and Agriculture Organization, http://www.fao.org/docrep/018/i3347e/i3347e.pdf

[iii] Gunders (2012) http://www.nrdc.org/food/files/wasted-food-IP.pdf; for more on on-farm food waste, see http://ngfn.org/resources/ngfn-cluster-calls/beyond-beauty

[iv] At the Federal level, the Bill Emerson Good Samaritan Food Donation Act of 1996; in Kansas, K.S.A. 65-687.

[v] USDA Food Waste Reduction Goals, http://www.usda.gov/wps/portal/usda/usdahome?contentid=2015/09/0257.xml

[vi] Personal communication, Lisa Thraser, EPA Region 7

[vii] Reducing Greenhouse Gas Emissions through Recycling and Composting (2011) U.S. Environmental Protection Agency, https://nepis.epa.gov/Exe/ZyPURL.cgi?Dockey=P100AWCJ.txt

[viii] Lawrence, Kansas, Solid Waste. http://lawrenceks.org/swm/backyardcompost and personal communications with Kathy Richardson, Solid Waste Manager.

APPENDIX

This appendix includes select data tables and definitions that were not included in the final sections of the report. On the Douglas County Food Policy Council website, interested readers can find a summary spreadsheet of all key data included in the full report, and matching data on most indicator for our surrounding 16-county region. While not intended to be maintained annually by Douglas County, the spreadsheet is intended to be a resource for community partners and other communities interested in background/baseline information about their food system, and foster discussions about the regional nature of local food systems issues and actions.

Summary Food System Report Data: https://www.douglascountyks.org/fpc/reports-and-resources

The end of this appendix features some ideas for future research that were not included as part of this report's creation.

INTRODUCTION

Definitions of water use categories:

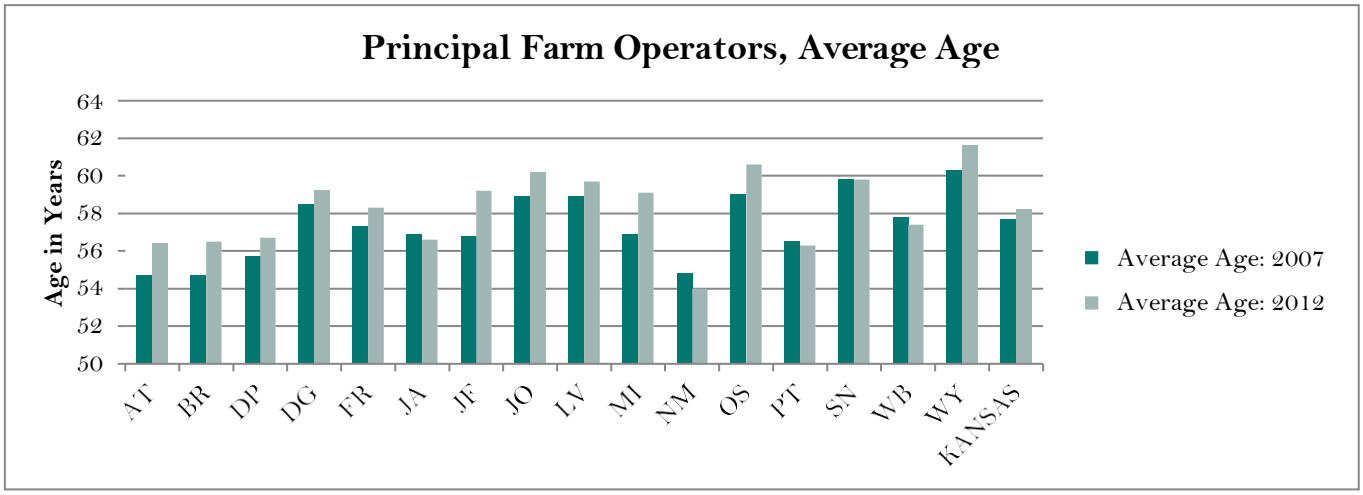
- **Municipal/ domestic** – Household use (indoor or outdoor), and municipal water supply use
- **Irrigation** – Water applied by an irrigation system to support crop and pasture growth, or to maintain vegetation on recreational lands such as parks and golf courses
- **Livestock** – Water used for livestock watering, feedlots, dairy operations, and other on-farm needs
- **Industrial** – Water used for fabrication, processing, washing and cooling
- **Mining** – Water used for the extraction of naturally-occurring minerals (such as coal, sand and gravel), liquids (such as crude petroleum) and gases (such as natural gas)
- **Thermoelectric** – Water used in the process of generating electricity with steam-driven turbine generators

Farm and Food Employment- NAICS codes used to define sectors:

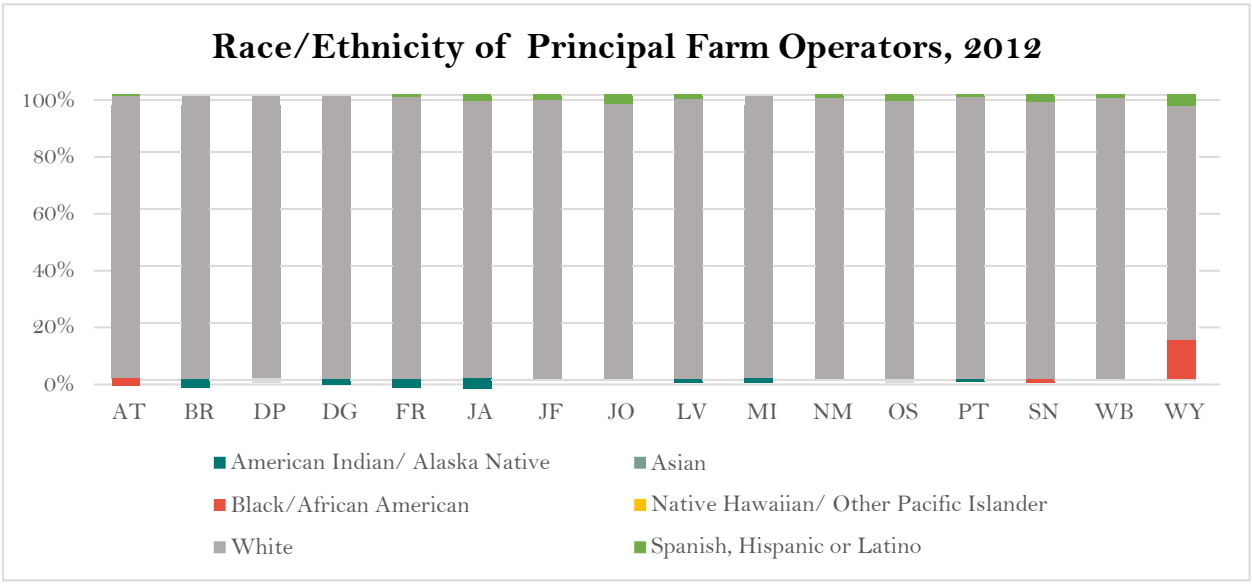
- Crop Production - 111
- Food Manufacturing - 311
- Grocery Wholesale - 4244
- Grocery Stores - 44511
- Eating Places – 72251

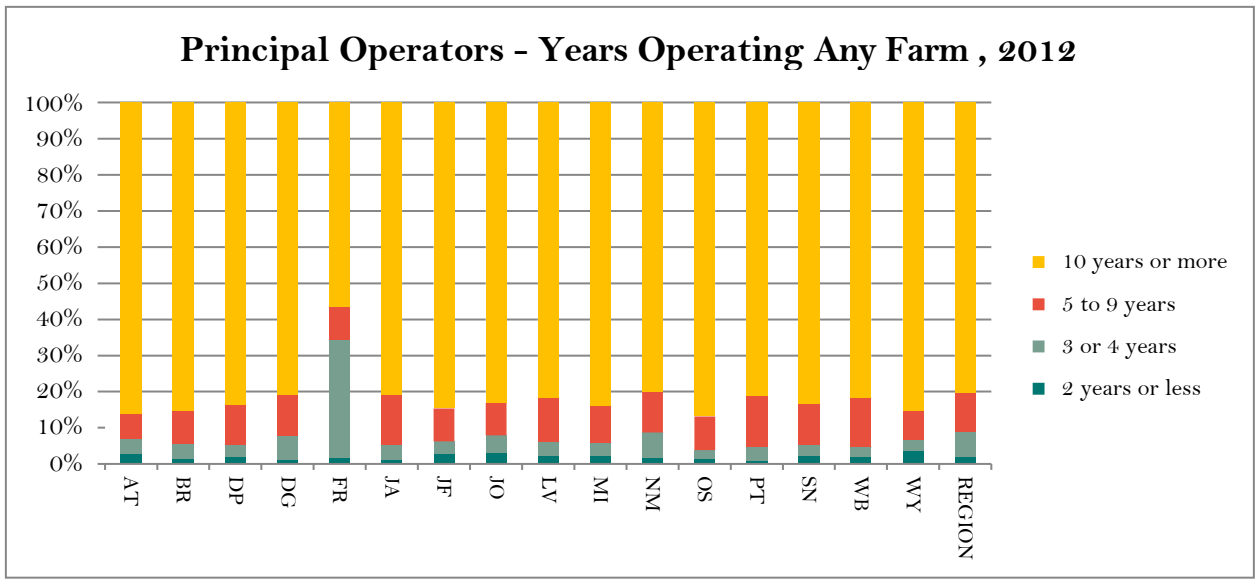
PRODUCTION

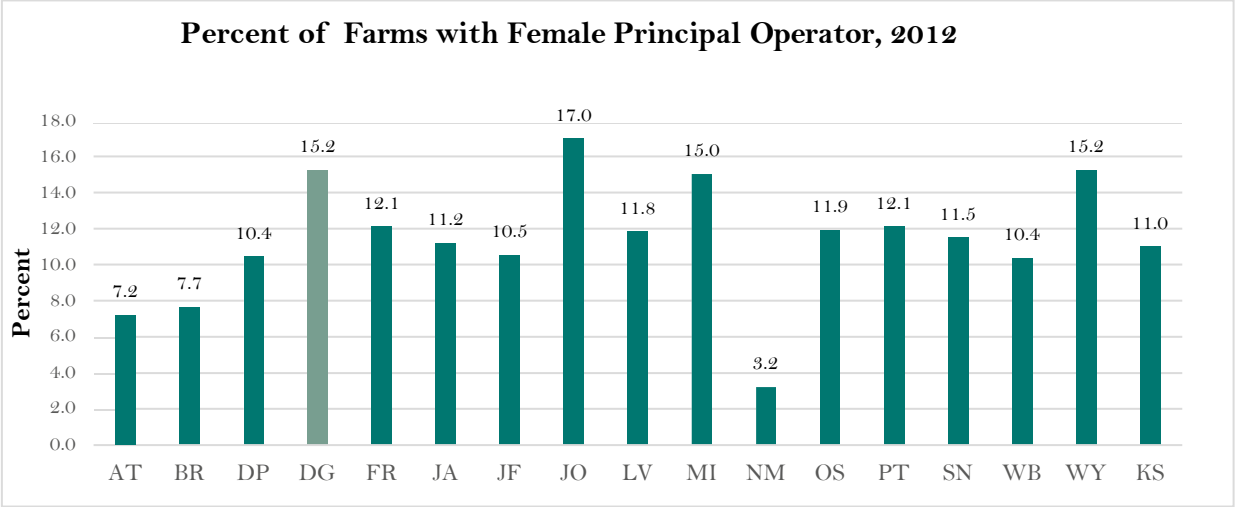
FARM OPERATORS



Data Source, Census of Agriculture, 2007 and 2012







Data Source, Census of Agriculture, 2012

ECONOMICS OF AGRICULTURAL ACTIVITIES

The following agricultural and food-related sectors included in the IMPLAN analysis: crop farming; greenhouse, nursery and floriculture production; beef cattle ranching; dairy cattle and milk production; poultry and egg production; commercial logging; commercial hunting and trapping; dog and cat food manufacturing; various food manufacturing businesses; breweries, farm machinery and equipment manufacturing; veterinary services, and landscape and horticultural services. *Retail food sales were not included.*

For more detail on the IMPLAN analysis for Douglas County, see the full report at: http://agriculture.ks.gov/docs/default-source/ag-marketing/county-ag-stats/2016-county-ag-stats/douglas-ag-contribution-2016.pdf?sfvrsn=4

GOVERNMENT PAYMENTS TO FARMS

Government Payments are described by the Census of Agriculture as "Government payments consist of government payments received from the Conservation Reserve Program (CRP), Wetlands Reserve Program (WRP), Farmable Wetlands Program (FWP), or Conservation Reserve Enhancement Program (CREP) plus government payments received from Federal, State, and local programs other than the CRP, WRP, FWP, and CREP, and Commodity Credit Corporation loans." l

https://www.agcensus.usda.gov/Publications/2012/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf

INFRASTRUCTURE

Incubator Kitchen sites in our region include four in Douglas County

County	Kitchen Name	Location	City
Shawnee	305 LLC	305 SE 17th Street	Topeka
Douglas	Culinary Commons	2100 Harper Street	Lawrence
Johnson	Food Innovation Accelerator at K-State Olathe	22201 W Innovation Drive	Olathe
Brown	Glacial Hills Food Center	1730 1st Ave. West	Horton
Douglas	Antiques on the Prairie – Commercial Kitchen	520 High Street	Baldwin City
Douglas	Sweet!	717 Massachusetts St.	Lawrence
Douglas	ECM	1204 Oread Ave.	Lawrence

Source: Kansas Department of Agriculture, Incubator Kitchen Resource Guide *https://agriculture.ks.gov/divisions-programs/food-safety-lodging/incubator-kitchen-resource-guide* ***and REF USA***

RETAIL

Data Summary, 2017 Douglas County Key Food Sources Map

Community Gardens

Business/Organization Name	Address	City	SNAP-Authorized?
Baldwin City Business and Professional Women Community Garden		BLD	N/A
Community Orchard	830 GARFIELD ST	LAWR	N/A
East Lawrence Community Garden	903 PENNSYLVANIA ST	LAWR	N/A
Garden Incubator at John Taylor Park	7TH ST AND WALNUT ST	LAWR	N/A
Just Food Community Garden and Farm	817 OAK ST	LAWR	N/A
Lawrence Community Garden	919 MISSISSIPPI ST	LAWR	N/A
Little Prairie Community Garden	NIGEL DR AND PETERSON RD	LAWR	N/A
Oread Friends Garden/Farm	1146 OREGON ST	LAWR	N/A
Pearl Clark Community Garden	639 ILLINOIS ST	LAWR	N/A
Penn St. Community Garden	1313 PENNSYLVANIA ST	LAWR	N/A
PermaCommons	1304 PENNSYLVANIA ST	LAWR	N/A
Willow Domestic Violence Center	1920 MOODIE RD	LAWR	N/A
Incubator Farm at 24/40	US HIGHWAY 59 AND US HIGHWAY 24		N/A
KU Student Farm	1865 E 1600 RD		N/A

Convenience/Dollar Store/Gas Station

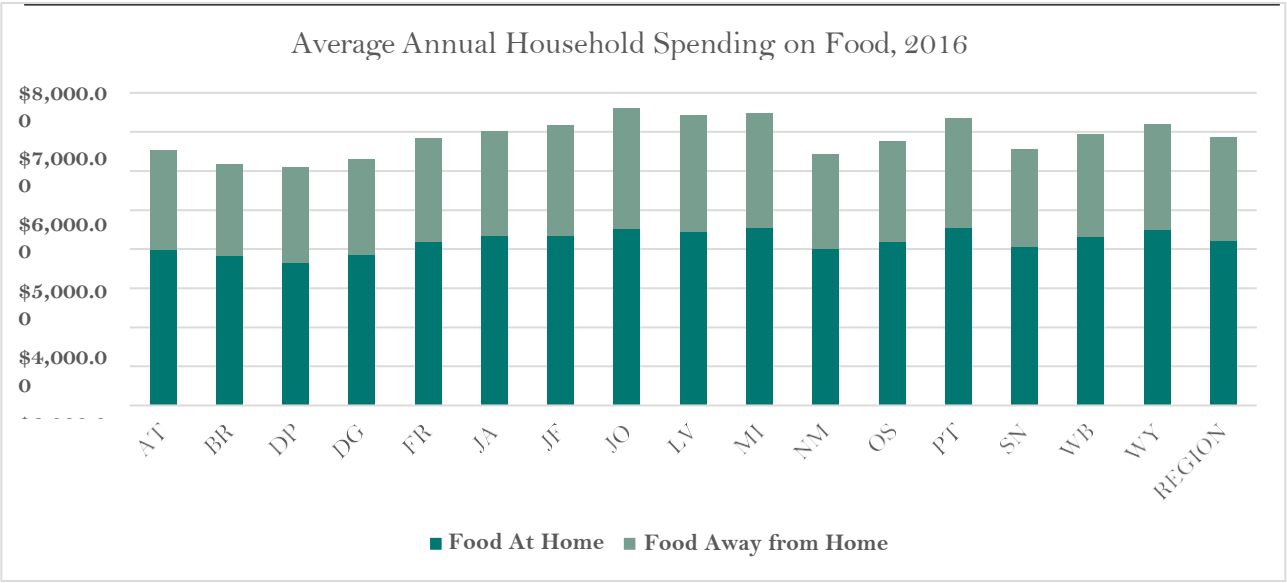
Business/Organization Name	Address	City	SNAP-Authorized?
KWIK Shop	601 AMES ST	BLD	Y
Casey's General Store	303 E 10TH ST	EUD	Y
KWIK Shop	1436 CHURCH ST	EUD	Y
Circle K 2721628	1802 W 23RD ST	LAWR	Y
Circle K 2721635	1030 N 3RD ST	LAWR	Y
Kum & Go	955 E 23RD ST	LAWR	N
KWIK Shop	1420 KASOLD DR	LAWR	N
KWIK Shop	1611 E 23RD ST	LAWR	Y
KWIK Shop	1846 MASSACHUSETTS ST	LAWR	Y
KWIK Shop	3440 W 6TH ST	LAWR	N
KWIK Shop	4841 W 6TH ST	LAWR	N
KWIK Shop	845 MISSISSIPPI ST	LAWR	N
Low Cost Tobacco Mart II	2104 W 25TH ST	LAWR	Y
Mass Stop	1733 MASSACHUSETTS ST	LAWR	N

Business/Organization Name	Address	City	SNAP-Authorized?
Miller Mart	3300 W 6TH ST	LAWR	N
Presto Express	1030 N 3RD ST	LAWR	N
Presto Express	1802 W 23RD ST	LAWR	N
Presto Express	2330 IOWA ST	LAWR	N
Presto Express	602 W 9TH ST	LAWR	N
Quik Trip	1020 E 23RD ST	LAWR	Y
Riverridge Mart	454 N IOWA ST	LAWR	Y
Zaroco Inc	1548 E 23RD ST	LAWR	N
Clinton Store	598 N 1190 RD		N
EZ Go	209 TPKE SERVICE AREA		N
Dollar General	110 N 8TH ST	BLD	Y
Family Dollar Store	1501 CHURCH LN	EUD	N
Dollar General	1001 N 3RD ST	LAWR	Y
Dollar General	1811 W 6TH ST	LAWR	Y
Dollar Tree	2108 W 27TH ST STE A5	LAWR	Y
Santa Fe Market Inc	522 AMES ST	BLD	N
Commerce Plaza Amoco	3020 IOWA ST	LAWR	N
Fast Lane	1414 W 6TH ST	LAWR	Y
Fasttrack Shell	1733 MASSACHUSETTS ST	LAWR	N
Harper Food & Gas	2220 HARPER ST	LAWR	Y
Hy-Vee Gas 5377	3905 W 24TH PL	LAWR	Y
Jayhawk Food Mart	701 W 9TH ST	LAWR	Y
Louisiana BP Food Shop	2301 LOUISIANA ST	LAWR	N
Miller Mart	2301 WAKARUSA DR	LAWR	Y
Quick Stop Inc	1000 W 23RD ST	LAWR	N
Sam's Food Mart	1900 HASKELL AVE	LAWR	Y
Swan Sea Inc	1801 W 2ND ST	LAWR	Y
Zarco	1500 E 23RD ST	LAWR	N

Farmers' Markets

Business/Organization Name	Address	City	SNAP-Authorized?
Baldwin City Farmers' Market	520 HIGH ST	BLD	N
Eudora Area Farmers' Market	1402 CHURCH ST	EUD	N
Cottin's Hardware Farmers Market	1832 MASSACHUSETTS ST	LAWR	Y
Lawrence Farmers Market (Saturday)	824 NEW HAMPSHIRE ST	LAWR	Y
Lawrence Farmers Market (Tuesday)	707 VERMONT ST	LAWR	Y
The Farmers Market At Clinton Parkway Nursery	4900 CLINTON PKWY	LAWR	N
Perry Farmers' Market	US HIGHWAY 24 and FERGUSON RD	LEC	Y

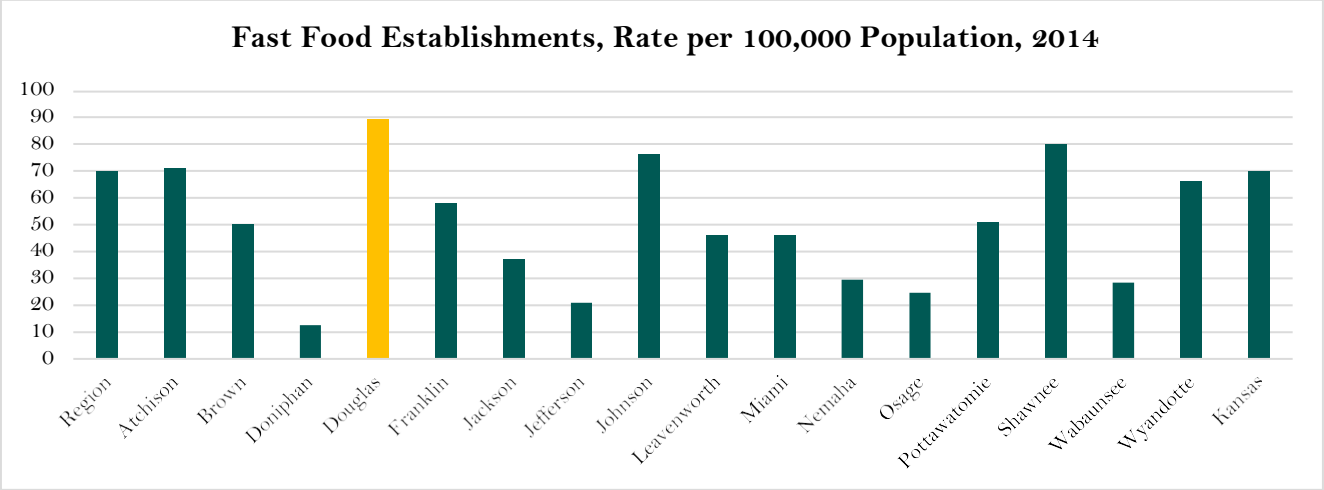
Grocery Stores			
Business/Organization Name	**Address**	**City**	**SNAP-Authorized?**
Baldwin City Market Inc	112 N 8TH ST	BLD	Y
Genes Heartland Foods	1402 CHURCH ST	EUD	Y
ALDI	3025 IOWA ST	LAWR	Y
Checkers Foods	2300 LOUISIANA ST	LAWR	Y
Dillons	1015 W 23RD ST	LAWR	Y
Dillons	1740 MASSACHUSETTS ST	LAWR	Y
Dillons	3000 W 6TH ST	LAWR	Y
Dillons	4701 W 6TH ST	LAWR	Y
Hy-Vee	3504 CLINTON PKWY	LAWR	Y
Hy-Vee	4000 W 6TH ST	LAWR	Y
Natural Grocers	1301 W 23RD ST	LAWR	Y
Sprouts Farmers Market	4740 BAUER FARM DR	LAWR	Y
The Merc	901 IOWA ST	LAWR	Y
Grocery Stores (Specialty)			
Business/Organization Name	**Address**	**City**	**SNAP-Authorized?**
African Caribbean Grocery	1530 W 6TH ST STE F	LAWR	Y
Cosmos Indian Store and Cafe	3115 W 6TH ST	LAWR	N
J&V Oriental Market	711 W 23RD ST	LAWR	Y
La Estrella	2449 IOWA ST	LAWR	Y
Mediterranean Market and Cafe	3300 BOB BILLINGS PKWY	LAWR	Y
Mi Tiendita	3022 IOWA ST	LAWR	Y
Kroeger's Country Meats	505 EISENHOWER MEMORIAL DR	LEC	N
Supercenter			
Business/Organization Name	**Address**	**City**	**SNAP-Authorized?**
Target	3201 S IOWA ST	LAWR	Y
Walmart Supercenter	3300 IOWA ST	LAWR	Y
Walmart Supercenter	550 CONGRESSIONAL DR	LAWR	Y



Data source: Business Decision Database, Retail Goods and Services Expenditures.

Total Consumer Food Spending (annual), 2016	
AT	$40,740,819
BR	$25,057,164
DP	$18,906,314
DG	$282,957,110
FR	$68,855,376
JA	$36,890,306
JF	$52,485,492
JO	$1,675,460,919
LV	$200,390,748
MI	$91,882,622
NM	$26,972,847
OS	$43,968,494
PT	$61,424,709
SN	$477,591,075
WB	$19,396,359
WY	$424,808,072
REGION	$3,547,788,426

Data source: Business Decision Database, Retail Goods and Services Expenditures.



Data Source: Community Commons, Food Environment Report. Original data from U.S. Census Bureau, County Business Patterns with additional analysis by CARES, 2014.

Definitions used to categorize restaurants, food establishments and bars

- **Bars/Taverns:** Serve only alcoholic beverages. Do not serve food. (Exception: Wagon Wheel which serves food for only 3 hours/day)
- **Catering:** Establishment that provides food and beverage to a remote location
- **Coffee Shop:** Establishment that primarily serves coffee
- **Fast Food:** Establishment that provides food that is prepared and served as quickly as possible. Typically lower in nutritional value. Food packaged in take-out containers. Includes pizzarias. Example: McDonald's, Taco Bell
- **Deli:** Establishment that prepares food made-to-order and fresh food. Food is fresher than fast food. Sandwiches or salads. Example: Subway, Mr. GoodCents'
- **Fast Casual**: Does not offer full-service restaurant experience but offers a higher quality of food with less frozen or processed options. Example: Chipotle, Panera
- **Full Service Restaurant**: Has a wait staff. Food and drinks are served directly to consumers' tables. Wait staff attend to consumers' needs throughout the meal.

ACCESS

K-12 Students Eligible for Free and Reduced-Price School Meals

School District	2016-2017 School Year			2015-2016 School Year		
	Total Enrollment	# Eligible for Free or Reduced-Price	% Eligible for Free or Reduced Price	% Eligible for Free or Reduced Price	% Eligible for Free	% Eligible for Reduced Price
USD 348 - Baldwin	1,431	486	33.96%	33.98%	25.83%	8.15%
USD 491 - Eudora	1,736	658	37.90%	38.61%	28.97%	9.64%
USD 497 - Lawrence	11,969	4,236	35.39%	36.45%	29.33%	7.13%
USD 434 – Santa Fe Trail	1,040	521	50.10%	52.26%	39.48%	12.78%
USD 450 – Shawnee Heights	3,504	1,301	37.13%	38.87%	28.86%	10.01%
USD 343 - Perry	745	297	39.87%	37.92%	28.96%	8.96%
USD 342 - McLouth	488	205	42.01%	47.60%	35.28%	12.32%
USD 464 - Tonganoxie	1,963	641	32.65%	35.08%	25.27%	9.81%

Figure 1 Data Sources: 2016-2017 data – Kansas State Department of Education, Data Central, Kansas k-12 Reports, http://datacentral.ksde.org/report_gen.aspx

Eligibility Definitions:

"Any child at a participating school may purchase a meal through the National School Lunch Program. Children from families with incomes at or below 130 percent of the poverty level are eligible for free meals. Those with incomes between 130 percent and 185 percent of the poverty level are eligible for reduced-price meals, for which students can be charged no more than 40 cents. (For the period July 1, 2013, through June 30, 2014, 130 percent of the poverty level is $30,615 for a family of four; 185 percent is $43,568 .)

Children from families with incomes over 185 percent of poverty pay a full price, though their meals are still subsidized to some extent. Local school food authorities set their own prices for full-price (paid) meals, but must operate their meal services as non-profit programs.

Afterschool snacks are provided to children on the same income eligibility basis as school meals. However, programs that operate in areas where at least 50 percent of students are eligible for free or reduced-price meals may serve all their snacks for free."

Source: USDA National School Lunch Program Fact Sheet, https://www.fns.usda.gov/sites/default/files/NSLPFactSheet.pdf

Data Summary, 2017 Douglas County Emergency Food Resources (All Communities)

Commodity Supplemental Food Program

Commodity Supplemental Food Program. Monthly box of commodities for seniors ages 60 or over.

Organization/Location	Address	City
Ballard Community Services - Penn House	1035 PENNSYLVANIA ST	LAWR
Catholic Charities of Northeast Kansas	1247 KENTUCKY ST	LAWR
Lawrence-Douglas County Housing Authority	1600 HASKELL RD	LAWR
LDCHA - Babcock Place (residents only)	1700 MASSACHUSETTS ST	LAWR
Salvation Army	946 NEW HAMPSHIRE ST	LAWR
Vermont Towers (residents only)	1101 VERMONT ST	LAWR

Food Bank

Collect food (purchasing, recovery, and donations) for distribution to other area pantries and emergency food access programs, in addition to on-site programs.

Organization/Location	Address	City
Just Food	1000 E 11TH ST	LAWR

Food Pantry

Distribute grocery bags (may be prepacked or client choice model). Open to the public, agency sets criteria for usage.

Organization/Location	Address	City
New Life Assembly of God	118 5TH ST	BLD
St Paul Church of Christ - Eudora Food Pantry	738 CHURCH ST	EUD
Ballard Community Center	708 ELM ST	LAWR
Catholic Charities of Northeast Kansas	1247 KENTUCKY ST	LAWR
Cornerstone Southern Baptist	802 W 22ND TERRACE	LAWR
ECKAN - Douglas County	2518 RIDGE CT	LAWR
First Baptist Church	1330 KASOLD DR	LAWR
First United Methodist Church of Baldwin	704 8TH ST	LAWR
Heartland Community Health Center	346 MAINE ST	LAWR
Lutheran Campus Ministry-Daily Bread (Campus Cupboard)	1421 W 19TH ST	LAWR
Prairie Park Elementary	2711 KENSINGTON RD	LAWR
Sunflower Elementary	2521 INVERNESS DR	LAWR
Trinity Interfaith Food Pantry	1027 VERMONT ST	LAWR
Lecompton United Methodist	402 ELMORE ST	LEC
Stull United Methodist Church	1596 E 250 RD	LEC
Heritage Baptist Church	1781 EAST 800TH RD	

Kitchen

Serve meals and are open to the general public.

Organization/Location	Address	City

ECM at KU	1204 OREAD AVE	LAWR	
Jubilee Café	946 VERMONT ST	LAWR	
Lawrence Interdenominational Nutrition Kitchen (LINK)	221 W 10TH ST	LAWR	
Salvation Army	946 NEW HAMPSHIRE ST	LAWR	

Limited Population Program

These programs include BackSnack (weekend feeding program administered through elementary schools), Emergency Aid (on-demand food or monetary aid for people facing medical issues or loss of property due to fire or other disaster), On-Site Feeding (serve meals to a specific population, and are not open to the public. This includes residential programs, some shelters, and daycares), and On-Site Food Pantry (pantry for specific population, and are not open to the public).

Organization/Location	Address	City	Type of Program
Baldwin Elementary Primary	500 LAWRENCE ST	BLD	BackSnack
Baldwin Intermediate Center	100 BULLPUP DR	BLD	BackSnack
Eudora Elementary	801 E 10TH ST	EUD	BackSnack
Broken Arrow Elementary	2704 LOUISIANA ST	LAWR	BackSnack
Cordley Elementary	1837 VERMONT ST	LAWR	BackSnack
Deerfield Elementary	101 LAWRENCE AVE	LAWR	BackSnack
Hillcrest Elementary	1045 HILLTOP DR	LAWR	BackSnack
Kennedy Elementary	1605 DAVIS RD	LAWR	BackSnack
New York Elementary	936 NEW YORK ST	LAWR	BackSnack
Pinckney Elementary	810 W 6TH ST	LAWR	BackSnack
Prairie Park Elementary	2711 KENSINGTON RD	LAWR	BackSnack
Quail Run Elementary	1130 INVERNESS DR	LAWR	BackSnack
Schwegler Elementary	2201 OUSDAHL RD	LAWR	BackSnack
Sunflower Elementary	2521 INVERNESS DR	LAWR	BackSnack
Sunset Hill Elementary	901 SCHWARTZ RD	LAWR	BackSnack
Woodlawn Elementary	508 ELM ST	LAWR	BackSnack
Lecompton Elementary	626 WHITFIELD ST	LEC	BackSnack
American Red Cross	2518 RIDGE CT	LAWR	Emergency Aid
Health Care Access Clinic	330 MAINE ST	LAWR	Emergency Aid
Community Children's Center / Head Start	925 VERMONT ST	LAWR	On-Site Feeding
Community Living Opportunities	2113 DELAWARE ST	LAWR	On-Site Feeding
Cottonwood, Inc.	2801 W 31ST ST	LAWR	On-Site Feeding
Lawrence Community Shelter	3655 E 25TH ST	LAWR	On-Site Feeding
Lawrence-Douglas County Housing Authority	1601 HASKELL RD	LAWR	On-Site Feeding
Meals on Wheels	2121 KASOLD DR	LAWR	On-Site Feeding
The Shelter	105 W 11TH St	LAWR	On-Site

			Feeding
Willow Domestic Violence Center	1920 MOODIE RD	LAWR	On-Site Feeding
O'Connell Youth Ranch	1623 N 1320 RD		On-Site Feeding
The Villages, Incorporated	1149 E 1200 RD		On-Site Feeding
Bert Nash Community Mental Health Center	200 MAINE ST	LAWR	On-Site Food Pantry

Mobile Food Pantry Distribution		
Distributions of fresh produce for people in need. No proof of income or residence required. Typically outdoor drive-through or walk-through distributions.		
Organization/Location	**Address**	**City**
New Life Assembly of God	118 5TH ST	BLD
Eudora United Methodist Church	2084 N 1300 RD	EUD
Ballard Community Services - Fairgrounds	1930 HARPER	LAWR
Catholic Charities of Northeast Kansas	1330 KASOLD DR	LAWR
Lawrence First United Methodist Church	867 US HIGHWAY 40	LAWR
Stull United Methodist Church	1596 E 250 RD	LEC

CONSUMPTION

CONSUMER FOOD EXPENDITURES

Definitions, from the U.S. Consumer Expenditure Survey,
https://www.bls.gov/cex/csxgloss.htm

Food Away from Home refers to the total expenditures for food at grocery stores (or other food stores) and food prepared by the consumer. It excludes the purchase of nonfood items.

Food away from home includes all foods prepared away from home (breakfast and brunch, lunch, dinner and snacks and nonalcoholic beverages) including at full-service restaurants, fast food, take-out, delivery, concession stands, buffet and cafeteria, and at vending machines and mobile vendors. Also included are board (including at school), meals as pay, special catered affairs, such as weddings, bar mitzvahs, and confirmations, school lunches, and meals away from home on trips.

Bakery and cereal products include: ready-to-eat and cooked cereals, pasta, flour, prepared flour mixes, and other cereal products such as cornmeal, corn starch, rice, bread, crackers and cookies, biscuits and rolls, cakes, cupcakes, bread and cracker products, pies, tarts, sweet rolls, coffeecakes, doughnuts, and frozen and refrigerated bakery products, such as cookies, bread and cake dough, and batter.

Meats, poultry, fish and eggs include: beef (excluding canned) and veal, bacon, pork chops, ham (including canned), roasts, sausage, and other cuts of pork, other meats (frankfurters; lunch meats, such as bologna, liverwurst, and salami; lamb and organ meats; and mutton, goat, game), fresh and frozen chickens and other fresh and frozen poultry, canned fish and seafood, fresh or frozen finfish and shellfish, fresh eggs, powdered eggs and egg substitutes.

Dairy Products include: Fresh milk and cream (fresh whole milk and other fresh milk, such as buttermilk and fresh cream, table cream, whipping cream, fresh sour cream, and fresh sour cream dressing), butter, cheese, ice cream products, yogurt, powdered milk, condensed and evaporated milk, liquid and powdered diet beverages, malted milk, milk shakes, chocolate milk, and other specified dairy products.

Fruits and Vegetables include: All fresh fruits; all fresh vegetables; frozen fruits and fruit juices; canned and dried fruits; canned or bottled fruit juices; canned, dried, or frozen vegetables; and vegetable juices.

Snacks and Other Foods at Home include: Sugar and other sweets (sugar, candy and chewing gum; artificial sweeteners; and jams, jellies, preserves, fruit butters, syrup, fudge mixes, icings, and other sweets), Fats and oils (margarine, shortening, salad dressings, vegetable oils, nondairy cream substitutes and imitation milk, and peanut butter), and Miscellaneous foods (frozen prepared meals and other foods; canned and packaged soups; potato chips, nuts and other snacks; condiments and seasonings, such as olives, pickles, relishes, sauces and gravies, baking needs and other specified condiments; and other canned and packaged prepared foods, such as salads, desserts, baby foods, and vitamin supplements).

FUTURE RESEARCH IDEAS

PRODUCTION

- As one of the three fastest urbanizing growth counties in Kansas, how we manage protecting our soil in the face of shifting population? What local, state, and national data is important for tracking land use changes and residential development in relation to agricultural production?
- What are the current, past, and projected trends relating to land price and availability in Douglas County and the surrounding area? What can local governments do to support maintaining working lands and farm transitions?
- Census of Agriculture data does not clearly align with how agricultural land is tracked by county appraisers and agricultural groups. How does two different data sets compare? Who is missing from each? What does a farm mean, when many farmers today operate multiple tracts throughout—and beyond—the county? Similarly, how does federal data on conservation programs compare to local programs to support conservation in agriculture?
- The analysis of farm sales and changes across various revenue categories and over time was primarily descriptive in this report. What could greater analysis of influence and effects show about our local food system? What are the opportunities for further regional or county-specific research with area agricultural producers across various levels of farm revenue—to give additional perspective to this topic?
- What is the volume of sales needed to support a farmer or family farm in Douglas County? How does that change based upon production mix and market channel(s)?
- How many people in Douglas County own farmland or are counted in the Census of Agriculture but do not pursue commercial agricultural production?
- Could a study in the region replicate collection and analysis of primary data to better understand the dynamic of local food sales in the agricultural economy? What are the benefits and drawbacks? How does it compare to exported sales?
- How do payments for conservation practices influence an agricultural producer's decisions? What local or state funding levels compare with federal funding? Greater analysis of trends and the current state of affairs could bring greater light to this aspect of our local food system.
- National studies and other data such as seed and nursery sales have documented a resurging interest in home gardening in recent years.[i] However, we cannot easily determine the number of home gardens in Douglas County. How could that local data be collected and tracked?

INFRASTRUCTURE

- What is the NRCS availability for cold-storage equipment loans and the level of utilization state wide and in the county?

RETAIL

- How can local partners best track school and community garden trends across the county?
- Although data on the exact number of meals served in area hospitals are not available, a conservative estimate can be derived by multiplying the annual number of inpatient days, times 3 meals per day. Using that method, Lawrence Memorial Hospital would have served an estimated 56,940 patient meals in 2015. That number does not include additional meals served to hospital staff and visitors, which is important to research further. How could this local data be collected and analyzed to understand the impact and scale of the hospital food service?

ACCESS

- Some consumers perceive farmers' markets as having higher-prices than grocery stores. Place-based research findings suggest, however, that buying local, in-season produce can actually offer cost savings for some products.[ii] Currently, no data of this nature has been collected in Douglas County, so it is not known whether similar variability may exist here. A local study to analyze this could reveal interesting findings to better support efforts to support healthy food access and grow the local food economy.
- As a county with three universities, students make up a significant portion (26%) of the Douglas County population. Still, no data currently exists about rates of food insecurity among students at the University

of Kansas, Haskell, or Baker. Better understanding the needs, and barriers, among this population could reveal important findings about our local food system.

CONSUMPTION

- Currently, there is no systemic collection of data concerning fish consumption from the Kansas River, which limits our ability to understand the impact state health warnings may have on residents who catch river fish for food.

WASTE & RECOVERY

- Little data exists about food waste in the community. Working with local partners to gather baseline data and track waste levels could be important for shining greater light and increased understanding on this part of the local food system.

ENDNOTES

[i] National Gardening Association's *Home Gardening Trends (2008-2013) Report*

[ii] Pesch and Keeler, 2015 http://www.mfma.org/files/840.pdf and Flaccavento, 2011 http://www.ruralscale.com/resources/farmers-market-study