

CHAPTER IV: KANSAS AGRICULTURE AND FOOD SYSTEMS

A) Current Conventional Kansas Food Systems

This chapter has two purposes. The first is to familiarize the reader with trends and attributes specific to the Kansas conventional food system as a context for considering the forces shaping alternative food system growth. The second is to introduce these alternative food systems from the vantage point of my own research methodology with a basic presentation of the data compiled on local food networks in this study. With these purposes in mind, this first section of the chapter will focus on the first purpose – a presentation of the status of conventional food systems in Kansas.

Kansas food systems have evolved in tandem with the national and global trends discussed in the first chapter of this dissertation, and they currently exhibit many of the characteristic attributes of modern concentrated food systems. Agriculture in the state shifted throughout the 20th century from predominantly medium-sized diversified family farms to fewer larger farms engaged in industrialized monocultural crop production. Farm incomes have deteriorated, encouraging a great population migration from rural to urban areas, and forcing remaining family farmers to either massively increase scale and capitalization of production or to seek supplemental off-farm income. At the encouragement of state research and extension services and resource policy, the Kansas agriculture industry has grown to utilize the state's 'comparative advantages' in exploiting its unique resources – both natural and human. The grain-livestock production complex in southwest Kansas, the dominance of second-stage grazing in the Flint Hills, and the large-scale dryland wheat farming in central Kansas are prime examples of such industrial economic development in agriculture.

Beyond agriculture, the production and consumption of processed, manufactured, durable and fresh foodstuffs, and the importation and consumption of fresh and manufactured foods, are the other side of the food system context. Structural shifts and concentration in the intermediate stages of the food system have been equally influential, preferentially developing markets in urban populations growing both in size and

affluence, and slowly retreating from rural markets. Massive concentrated beef slaughter facilities have been Kansas's specialty, a part of the concentration and regionalization of meat slaughter throughout the country, while centralized wholesale distribution warehousing in Kansas City and large cities in nearby states have served the well-stocked urban supermarkets with durable and fresh foods from around the world. To keep retail prices competitive by buying in bulk, smaller and geographically dispersed rural grocers are forced to maximize their business with one of the major wholesale distributors, limiting options for small-scale agricultural marketing to various forms of direct-to-consumer sales. In this structural evolution, the concentration of food system intermediaries and the concentration of the U.S. population into urban centers have developed hand-in-hand.

In what follows, I will present some details about Kansas food systems as a way of describing the openings for alternative agri-food development in Kansas.

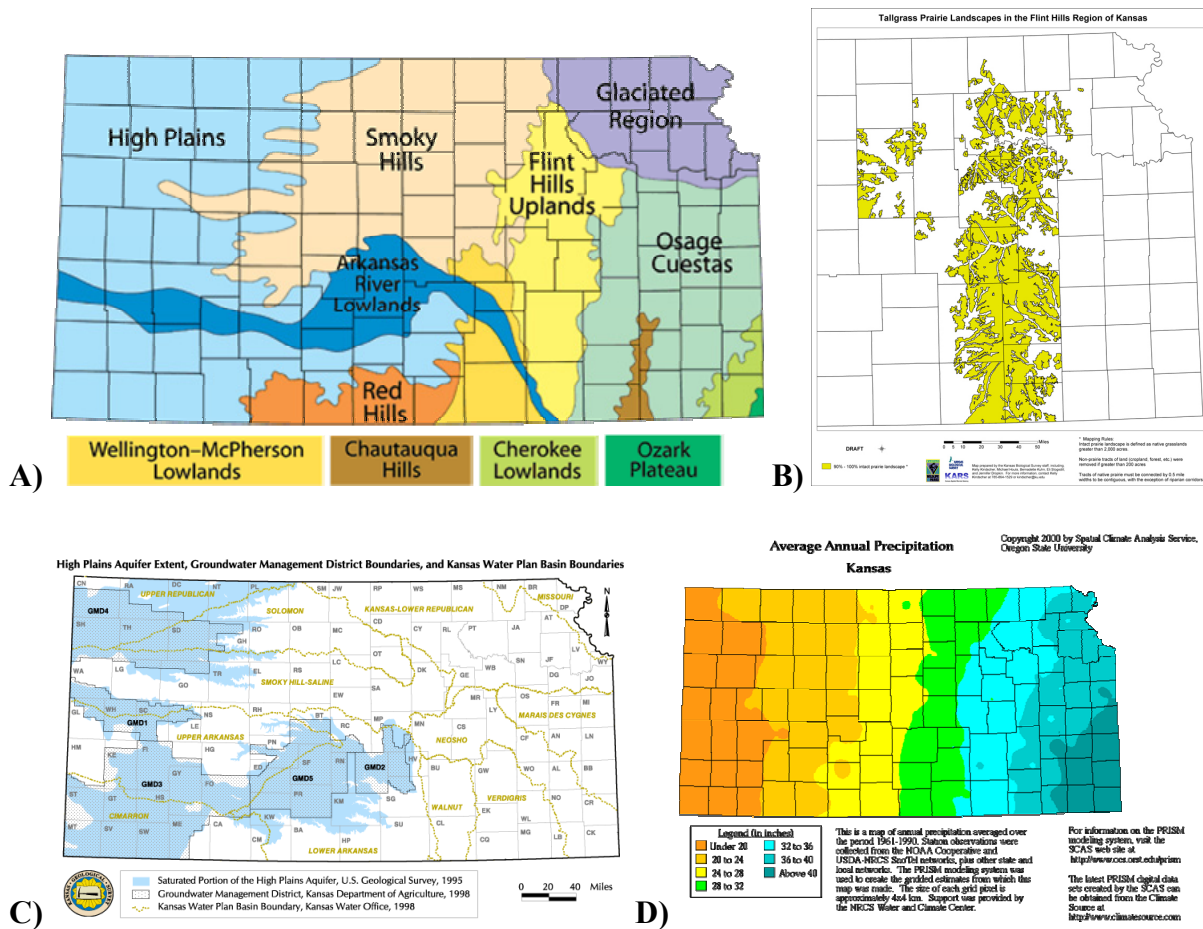
1) The Agricultural Geography of Kansas

Agriculture is a primary sector of the Kansas economy and land use. Agriculture and food processing/manufacturing represents 15.6% of total Kansas economic output, and 7.6% of employment in Kansas is in agriculture, processing and manufacturing of Kansas agricultural commodities, or other industries transporting, serving, retailing, etc. the outputs of Kansas agriculture (Mintert, Woolverton et al. 2006). Over 47 million acres of the 52,648,960 acres in Kansas are devoted to farms – just under 90% of the surface area of the state (Thornburgh, Commerce et al.). The physical geography of Kansas presents challenges to agriculture, and the dominant modes of agriculture in Kansas have survived and prospered largely through specialization and concentration of production, as well as through scale and industrialization of production and processing, in taking advantage of the soil and water resources of the state and mitigating climate variability.

As it impacts agriculture, the physical geography of Kansas has two important components – geology and climate. The geological physiography of the state is outlined in Figure 8a, with a specialized map of the Flint Hills region in Figure 8b. The elevated

and flat high plains region in the west is rather arid, making dryland farming of all but a few drought resistant crops difficult. The high plains aquifer (Figure 8c) has made possible the growth of water-intensive crop systems despite the arid environment (Figure 8d), especially feed grains for the extensive cattle feedlots that also profit from access to groundwater. A strong meatpacking industry is the third in the triumvirate of agriculture industries dominant in Southwest Kansas, all of which are made possible through the high plains aquifer. However, there is great debate about the sustainability of water intensive activities in this region due to the rapid depletion and slow recharge rate of the aquifer. Non-irrigated fields in Western and Central Kansas are the heart of wheat production, where drought resistant wheat is ideally suited to the relatively dry growing season of the high and central plains. The Flint Hills (Figure 8b) is an extensive hilly region characterized by shallow, rocky soils, and only its lowland areas have been extensively tilled, making it the largest roughly contiguous expanse of untilled tallgrass prairie in North America. Land use in the Flint Hills remains largely high value pasture for cattle and some bison. The loess-based fertile soil and higher annual precipitation in the glaciated region of the far Northeast of the state is ideal for corn and soybean field crops and some hog production, just as with the rest of the glaciated soils of the U.S. corn belt. Southeastern Kansas has the highest annual precipitation of the state, making dryland farming of many crops and animal production viable. The suitability of this region for many crop and animal production schemes here has prevented the kind of long-term regional specialization found in other parts of the state. Farms in this region of the state are smaller, more diverse, and with less farm income than most other parts of the state. Figure 9 below shows maps of some of the trends toward agricultural regionalization just mentioned.

Figure 8: Kansas Ecoregion, Aquifer, & Precipitation Maps



Caption: A) Kansas Ecoregions²; B) Intact Flint Hills Grassland³; C) Extent of High Plains Aquifer⁴; D) Kansas Annual Precipitation Gradient

Kansas agriculture is dominated by the aggregation of farming and processing industries centered on two major commodities, beef cattle and wheat. Of all 50 United States, Kansas is ranked 1st in wheat production, 2nd in beef slaughter, and 3rd in total red meat production (Thornburgh, Commerce et al.). Of the \$9.6 billion of Kansas agricultural output in 2002, \$5.9 billion was in cattle feedlots and ranching, while \$2.4 billion was from grain production, mostly wheat and corn. The maps in Figure 9 below illustrate the regionalization of production in these commodities, and educated

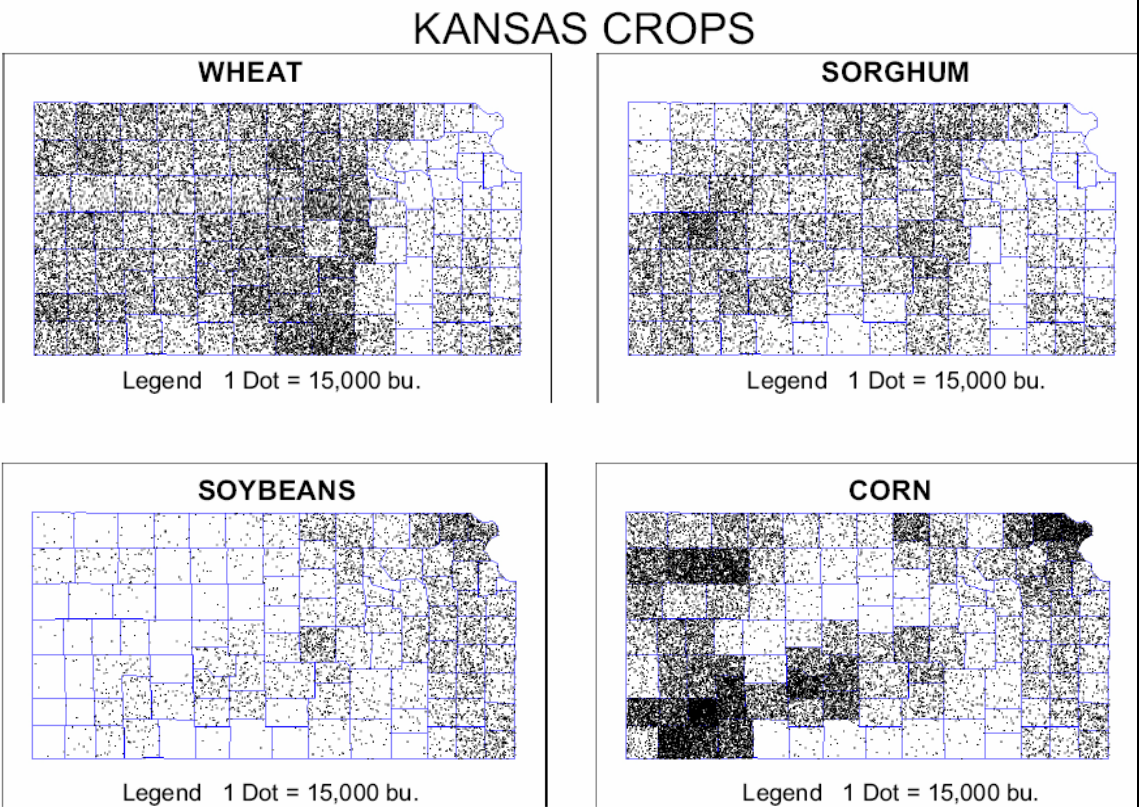
² Kansas Native Plant Society: <http://www.kansasnativeplantsociety.org/ecoregions.htm> (actually from the KSGS, showing geological regions and not necessarily ecoregions)

³ From the Kansas Energy Council website:
http://www.kansasenergy.org/KEC/FHmaps/flinthills_prairie.jpg

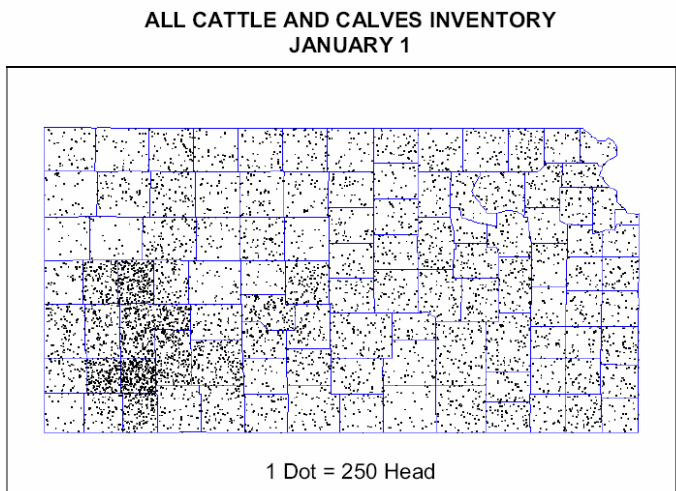
⁴ Kansas Geological Survey: <http://www.kgs.ku.edu/HighPlains/atlas/locmap.gif>

interpretation allows one to identify characteristics of regional commodity complexes. In the case of beef cattle, corn grown in Southwest Kansas is used primarily as feed in the extensive cattle feedlots of the region, which, in turn, conveniently surround the major meatpacking plants in Garden City and Dodge City. The formation of these commodity

Figure 9: Kansas Crop and Livestock Production in 2003



Caption 1: 2003 Productivity for Major Grain Crops Reported by County (K.A.S.S. 2004)



Caption 2: 2003 Cattle Distribution in Kansas (K.A.S.S. 2004)

complexes entails large corporate investments in infrastructures for farm supplies and for processing outputs and accessing global markets. The beef complex dominates Southwest Kansas, while wheat consolidation and processing dominates in central cities like Hutchinson and Salina. Farms that cannot participate in these commodity complexes due to location in distant regions, lack of scale, or alternative commodity production are marginalized by competitive disadvantage in farm supply and market access compared to these complexes.

Some of the effects of such marginalization are seen in the concentration of market share into the largest farms in the state. The numbers are just as stark as in the concentration of agriculture into individual commodity chains. Roughly five percent of farms in 2002 produced 75% of farm output – 3,602 of 64,414 farms. Fully 25% of Kansas total agricultural output comes from the top 29 cattle feedlots, which happen to also be the largest farms in the state in terms of gross sales. The 1,506 feedlots in Kansas sold \$4.2 billion in product in 2002. By contrast, the 150 vegetable/melon farms and 51 apple orchards in Kansas sold \$12.9 million in produce and \$268,000 in apples, respectively, in the same year. That there is so little produce, fruit, and nut production in Kansas from so few farms is partly due to difficulties with Kansas climate, but it is also due to market forces that encourage concentration and industrialization of farming to match concentration in processing and distribution of foods, as well as a yielding to the “comparative advantage” of states like California and Washington when it comes to produce and apple production.

The competitive forces that have developed alongside the regional concentration of commodity systems and the consolidation of farm productivity have severely restructured the farm demographics of Kansas. The number of Kansas farms has decreased from approximately 140,000 after World War II to 64,414 in the 2002 U.S. Census of Agriculture. At the same time, average farm size gradually increased from 350 to 730 acres, indicating a loss of middle-sized farms to bankruptcy and/or consolidation into larger farms. Between 1997 and 2002, there were only two sales categories where the number of farms increased – the number of farms with less than \$1,000 in annual sales doubled from 8,740 to 16,466, while the number of farms with over \$2.5 million in

annual sales increased to 249 from 225. The increase in farms with less than \$1,000 in sales appears to stem largely from former middle-sized farms that have likely all-but ceased on-farm production in favor of off-farm income. The results of the decimation of Kansas farmsteads have been grim for rural economies, and the systematic consolidation of agriculture into fewer commodities by fewer hands has alienated many to the point of pursuing utterly independent production and marketing.

One form of sales that in recent years seems to have bucked the trend of decreased market share for middle-sized farms is that of direct marketing. The number of farms selling agricultural products directly to individuals for human consumption increased by 13% between 1997 and 2002, while the amount of direct sales increased by 134% in the same time (from \$3.8 million to \$9 million). Lest one think that this trend is largely due to the large increase in drop-out farms selling less than \$1,000 per year, the increased sales were all in farms with at least \$1,000 in annual sales. Furthermore, the biggest increases were with farms of over \$10,000 in direct sales and the number of farms over \$25,000 in direct sales nearly quintupled from 14 to 64. While the number of farms participating in direct marketing remains small (2.8% of all farms in 2002), direct marketing appears to be the sole bright spot among the marketing options for small- and medium-sized farms. The growing success of direct marketing is of course built on the long-term trend over the past few decades of concerned consumerism which is becoming just as much an important market force in Kansas as elsewhere in North America and Europe.

Small farm advocates have effectively organized within Kansas to foster consumer interest in Kansas farms and farm products, and they have proliferated in recent years. The Kansas Rural Center has for 27 years worked to “cultivate(s) grassroots support for public policies that encourage family farming and stewardship of soil and water” as a non-profit organization in eastern Kansas. Much of its project focus has been in building sustainable food system projects around farm clusters and consumer education initiatives. It was instrumental in the creation of another non-profit group, the Salina Food Policy Council, which was very effective in bringing together farm, restaurants, local institutions, and the city chamber of commerce to talk about the future of their food

system as mutual stakeholders. The success of this program drew the attention of the Governor, and she has used it as a model for her statewide Kansas Food Policy Council initiative. In additional recognition of the role of the Rural Center in promoting grassroots rural development, the Governor also appointed the President of the Rural Center to head her Rural Life Task Force. The Kansas Rural Center is one of the best, but by no means the only, examples of ordinary citizens organizing to build alternatives and new institutions to serve their needs when most public institutions cling to a very narrow paradigm that often does not reflect their needs.

It is in fact an odd irony that the Governor would honor the Kansas Rural Center's efforts with such esteemed appointments, as other institutions under her watch exhibit very different priorities. For instance, Kansas, Inc. is an organization established by Kansas Legislature in 1986, co-chaired by the Governor with a board of directors populated by a combination of elected state representatives and state industry leaders, and with a mission to research policies for economic development and forge public-private partnerships to that end. The scant attention paid to agriculture and food issues by this group is informed by a highly selective group of agricultural economists from Kansas State University, deeply wedded to supporting commodity markets, export-oriented trade policies, and neoliberal market mentalities (Mintert, Woolverton et al. 2006). The Kansas Rural Center would have little in common with Kansas, Inc., despite the fact that they, too, are devoted to strong economic development. This division is further exemplified by a lack of partnership between the Rural Center and the major public universities of Kansas on its initiatives. The message delivered to small farm advocates like the Rural Center in Kansas is that their work is extremely important, but it doesn't fit into the right paradigm for strong institutional support.

Against this institutional vacuum, other groups have in recent years begun to form and coalesce around issues of sustainable food systems corollary to the efforts of the Rural Center, especially in the Kansas City area. The Kansas City Food Circle is a well-known example (Hendrickson 1997; Hendrickson and Heffernan 2002), and Growing Growers has helped connect young apprentices with small farms for internships during the growing season for two years now, with the objective of educating future growers and

supporting existing small farms in meeting the unmet demands for fresh, local produce in the Kansas River Valley (Burress 2000). The Kansas City Center for Urban Agriculture (KCCUA) has similarly set about the task of fostering urban farms in Kansas City, especially in poor and underserved neighborhoods prone to food insecurity. Also, Kansas City independent restaurants have formed a group called the KC Originals to support each other and as a forum for working together on common efforts like reaching out to local farms. These efforts are certainly beginning to bear fruit, as the Kansas River Valley Initiative has just been announced in the Horticulture Department of Kansas State University to support farmers in exploring vegetable production in the river valley as an alternative to commodity grains.

From the perspective of agriculture and farming, it is somewhat clear that the local food movement is a reaction to producer marginalization within conventional agricultural commodity chains. The state average net farm income of just \$13,000 in 2002 is simply not sufficient to sustain farmers, individuals or families. Some farms react by continuing production at very low levels as a hobby while seeking outside employment, some sell their farms outright, and other seem to be aggressively developing direct marketing avenues. Independent direct marketing through farmers markets and on-farm sales are clearly rising, but so are direct marketing cooperatives and farm advocate associations like the Kansas Rural Center and the small farm and local food advocates in and around Kansas City. The growth opportunities for direct marketing and local food certainly have geographical tendencies of their own, just as do the conventional commodity chains. Marginalized farms exist throughout Kansas, and geographies of consumption may ultimately be more influential on the growth of local food chains than those of production. The following section will present a picture of food consumption in Kansas to further flesh out the emergence of local food niches in the state.

2) Consumption: Retail and Restaurant Food Structures and Options

All people are food consumers, so it stands to reason that capitalist food systems would to a large extent develop geographically in line with population demographics. Such a food system would develop its infrastructure for serving urban concentrations of people, and especially affluent concentrations, marginalizing rural consumers. The U.S.

Figure 10: Reference Map of Kansas¹



food system has, in large part, developed according to this pattern for much of the last century, and the pattern has been reinforced in Kansas, as elsewhere, by a net migration of rural residents to urban areas due to decreasing net farm incomes and rural job opportunities.

The population migration continues to this day, where the urban population of Kansas grew from 1.64 million in 2000 to an estimated 1.84 million in 2003 and the rural population declined from 1.04 million to an estimated 880,000 residents in the same time period (Marketing Services Branch 2003). Grocery and restaurant statistics show the power of this urban population concentration on the distribution of food sales. The seventeen metropolitan and micropolitan areas of the state hosted 84% of Kansas retail food sales in 2002, while 90% of restaurant sales occurred in the same areas (Bureau 2005). The larger cities of this group are all clustered in Eastern Kansas, closer to the region's major metropolitan area in Kansas City.

The map shown above in Figure 10 can serve as a reference for noting the geography of urban Kansas. Kansas City is the dominant metropolitan area in the region, with a combined urban and suburban population of over 1.5 million, although much of this population is part of Missouri, as the city straddles the Kansas and Missouri state

lines. The south-central city of Wichita is the largest urban area wholly contained within Kansas borders, with 477,000 urban and suburban residents. Topeka is the next largest city, with about 154,000 residents, and is also the state capital, while Lawrence follows closely behind with about 86,000 people benefiting in its population and economic development from a large university population and a close proximity to Kansas City. One hour west of Topeka is Manhattan, with approximately 45,000 residents and the other major public university in Kansas. With most food purchases based in urban areas, and with much of the urban population clustered in Manhattan, Topeka, Lawrence, and Kansas City in Northeast Kansas along the Kansas River Valley, this is an ideal sub-region of Kansas in which to focus the study of local and regional food production-consumption networks.

Indeed, one recent study of food consumption and demand for organic and “local” produce focused on the Kansas River Valley because of its importance to food marketing in Kansas. The study (Burruss 2000) found that the market in the Kansas River Valley for organic and “local” produce was very undeveloped, and it estimated that such produce could garner up to \$100 million of annual sales (15% of the produce market) in the region, assuming a small price premium, better consumer access to such foods, and availability for 30% of the year (the prime Kansas growing season). Consumer surveys in the study indicated that with price and quality equivalence, “localness” was found to be preferred to organic certification by a wide margin, even as respondents offered widely varying definitions of “local”, including freshness, varietal choice, environmentally sensitive production and/or distribution, local economic impact, or closer relationships between producer and consumer (Burruss 1999; Harris, Burruss et al. 2000). This surging demand for local food has its foundations in broader socio-economic trends and in the structural shifts of food retail and wholesale sectors.

Over many years, the proportion of food consumed away from home in the U.S. has been increasing while at-home consumption has been decreasing. Today, at-home and away-from-home food consumption are nearly equal in the U.S. The usurpation of retail food market share by restaurants and other foodservice establishments has surged with the increase in fast food consumption in recent decades. The growth has not been

universally shared among restaurants, however, as the primary growth has been in franchised foodservice establishments. This standardized organization of U.S. foodservice amounted to 39% of total restaurant sales in the year 2000 through the 50 largest U.S. franchises, up from 28% in 1999 (Harris, Kaufman et al. 2002) (p.37). The convenience of fast food has nearly overtaken full-service restaurants at the national level for a majority of sales in foodservice establishments, and fast food has already done so in Kansas, with \$1.3 billion in fast food sales vs. \$1.1 billion in full-service sales in 2002 (Bureau 2005). The concentrated growth of foodservice into franchises represents a substantial concentration in the food system as a whole toward integrated national and international supply chain systems and more standardized food choices. It also places tremendous competitive pressure on the independent restaurants competing against chain restaurants and on retail establishments to match the convenience and flair of eating out.

The dominance of traditional supermarkets in food retail has been slipping in recent years due to increasingly demanding consumers and increased competition from foodservice and mass merchandisers. Supermarkets rose to dominate the food retail sector in post-war America by utilizing the concentration of agricultural processing, food manufacturing, and food wholesaling and distribution to offer a wide array of food products to the American consumer, both fresh and durable. Despite sometimes heavy concentration and trans-nationalization of food chains, supermarket chains have remained largely regional in scope. Some of the larger chains have branched out into wholesaling to provide warehousing and distribution services to their own stores, but national chains did not emerge for years. However, health food scares and food fads in recent years have led to differentiated tastes and more discerning food purchasers, and this has led to significant differentiation in store formats to serve different consumer cross-sections, especially in more affluent suburban areas. Health food supermarkets (e.g. Whole Foods and Wild Oats) have established themselves in this niche at a national scale. At the same time, mass merchants have encroached on the market by offering the convenience of shopping for durable goods along with their food purchases using the supercenter store format (e.g. Wal-Mart Supercenter and Super Target stores). Semi-wholesale store

formats (e.g. Sam's Club and Costco stores) have also captured a significant proportion of sales in bulk purchases of basic food commodities.

The reaction of the conventional supermarket sector has been one of consolidation. A few supermarket chains have broached the national scale of market competition through a series of mergers in the late 1990's. There has also been a substantial expansion of self-distributing supermarket chains as some find a combination of wholesale and retail operations to reduce costs, add value, and allow for more effective store format differentiation. For most conventional supermarket chains, survival will be dependent on differentiating themselves substantially from mass merchandisers by the product quality, store atmosphere, and expanded choices they offer to consumers, and by offering convenience to draw them from fast food and restaurant chains. Appealing to consumer interests through healthful, fresh, and "local" foods is part of this strategy of differentiation for an increasing number of regional supermarkets.

In Eastern Kansas, there are millions of dollars in sales awaiting those who can provide the consuming public the kind of information and assurances they seek about a whole range of issues related to food production, provenance, and economic and social feedbacks. For reasons of restructuring and competition, there are strong incentives for parts of the foodservice and food retail sectors to deliver on these consumer demands to remain competitive among their rivals. There are also great opportunities in alternative forms of marketing for the small farms that have been marginalized by the concentration and industrialization of basic food commodity markets. Innovative producers, independent restaurants, and supermarkets may thrive amidst competition if they can find ways of cooperating to deliver new systems of provision with new information and believable assurances of healthfulness and environmental, social, and economic equity. These systems are currently being developed, and whether the politics of these new systems will match their assurances is an open question. The basic demographics of consumption dictate that any systemic growth of alternative food supply chains will necessarily cater to urban populations and existing markets and infrastructures. The remainder of this study is dedicated to exploring the open question for Eastern Kansas of where the leading edges of this growth can be found and what the relationships between

alternative and conventional systems really are. The following section will begin this agenda with an introduction to the geography of local food commodity chains that have emerged in the region.

B) Alternative Agriculture and Food Systems in Kansas

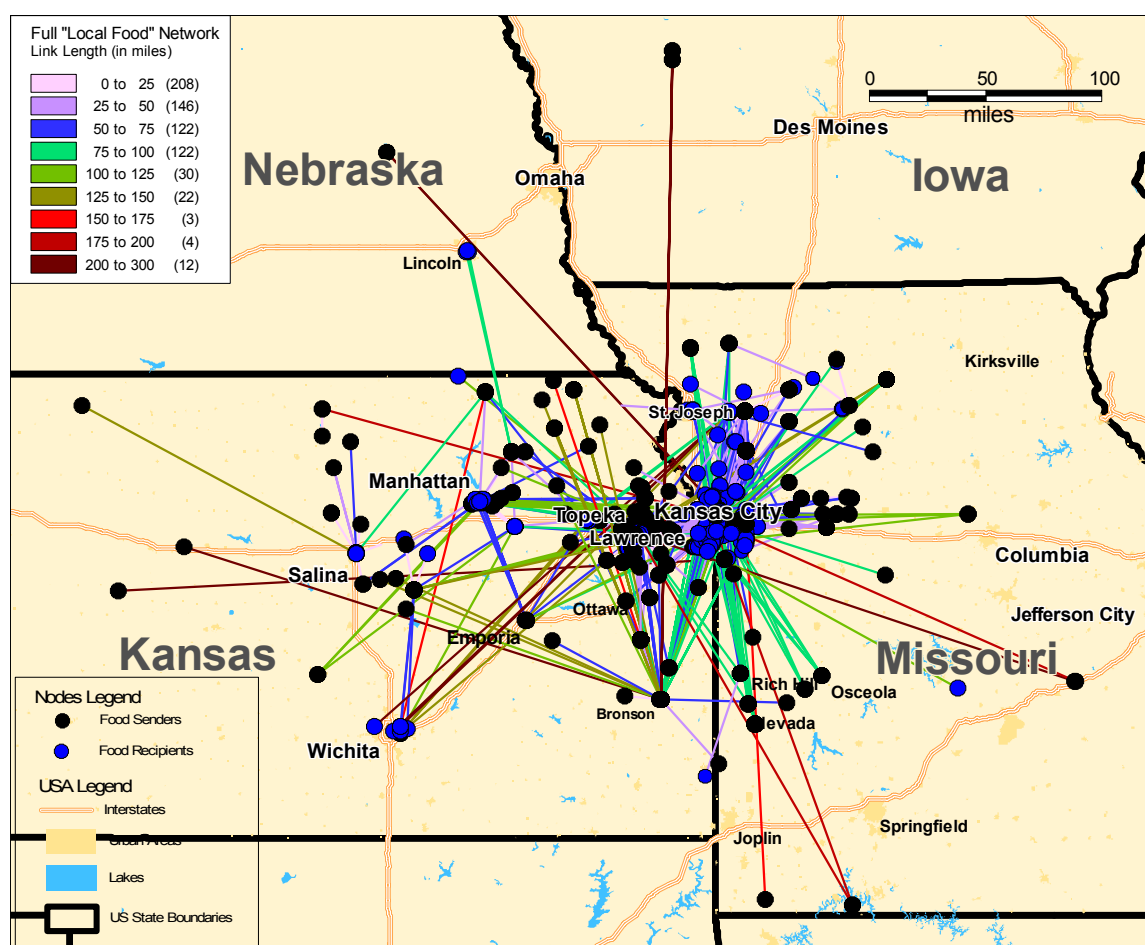
While much can be gleaned from economic and agricultural census reports on the state of Kansas food systems, their statistical overviews obscure the contestation of existing agri-food systems at the margins. The agricultural census exposes dominant commodity production and industry concentration among major commodity producers, but the figures do little to describe the activities and projects of the 95% of farms that produce 25% of Kansas agricultural products. It is these small farms at the margins of agriculture that are desperately seeking new models of agriculture and marketing for their survival. The economic census also exposes the vast majority of retail and foodservice sales to serve urban consumers. While census reports recognize shifting consumer demands, they focus on reporting structural adjustments and mergers among major corporate actors in response to these demands as opposed to new marketing programs and supply chain systems that will also affect the competitive structure of these industries. Concerns about health, small farm viability, food scares, food quality, environmental impact of agriculture, sustainable economic development, and more are driving consumer advocates and marginalized farms to reach out to each other in re-imaging food systems and forging new pathways for foods at local and regional scales.

The particular developments, viabilities, and modes of relationships of these new pathways will influence the evolution of conventional food systems at the same time as the pathways attempt to construct themselves as viable alternatives to such systems. As the alternative agri-food participants and economics are rarely tracked in census figures due to their marginality in the U.S. food system, snowball sampling was an effective means of gathering information about those involved in alternative local food initiatives to chart the alternative pathways of local food throughout Eastern Kansas. Chapter 3 describes the practice of following the food that was employed to this end. There were many types of local food moving along the alternative agri-food pathways of the region, and also a great diversity of participants. Out of a relational database constructed using

data obtained in the sampling process, I have constructed a series of maps depicting the geographical networks which the local food pathways of Eastern Kansas constitute.

Figure 11 below depicts these pathways as one network, linking urban and rural perspectives. In the sections and chapters that follow, I will analyze subsets of this

Figure 11: The Eastern Kansas Local Food Network



Caption: Constructed through a relational database of information gathered through snowball sampling in the summer of 2005 of participants in the network. Blue nodes represent farms, while black nodes indicate downstream participants like retail, foodservice, processing, and distribution establishments.

The study focused on linkages through urban areas along the region's major river valley and highway corridor - from East to West, Kansas City, Lawrence, Topeka, Manhattan, and Salina. Links to participants outside the study region were incorporated into the network, but these participants were not sampled or interviewed along with those within the study region. Local food is defined as food whose provenance can be traced to the point of agricultural production, including processed foods, and "local" was self-defined by the respondents.

network to identify communities within it, the social conventions that form the foundation of the network's linkages, and the politics of spatial engagement as the nodes of the networks must be settled in actual, produced spaces.

The process of analysis will begin in this chapter with an introductory analysis of the network. Section one below will focus on describing the different types of foods involved and the diverse population of participants in the network. Section two will break the network down into subsets according to a basic food type classification in order to present a basic commodity system analysis (Friedland 1984; Dixon 1999; Friedland 2001) focused on describing the concentration and geographical distributions of pathways for particular local food types. Together, this analysis provides a 'global', or abstract, perspective and accounting of the economic relations of the Eastern Kansas local food movement, compensating for U.S. agricultural and economic census statistics that fail to take the alternative movement into account.

1) Alternative Agri-Food Participants

The local food network mapped above in Figure 11 consists of 357 nodes and 695 links traversing a region approximately 450 miles in both longitude and latitude. The nodes consist of the various local food participants – individuals, corporations, and organizations who trade in local foods in one form or another – while the links represent consistent trading relationships of local foods between the participants. The meaning of local food was left to the individual interpretations of the participants, but for a food to be termed local by the participant it must be local from the point of ingredient production through to the point of final purchase by the consumer. Foods made with non-local ingredients were not included in the network, even if they were made by small local companies marketing directly to local consumers. With this open definition of local food, the network contains a very wide variety of both participants and foods. The range of participants run the gamut from itinerant urban gardeners to transnational retail supermarkets, and foods range from conventionally produced feedlot beef to biodynamically produced exotic Italian heirloom tomatoes. local distances range from

less than a mile to over 200 miles. This section will dissect the collected data on participants and food types toward a better understanding of the distributions within these ranges of the types of participants and foods that constitute local food movements.

The U.S. agricultural and economic censuses use the North American Industrial Classification System (NAICS) to analyze the various productive sectors within the U.S. economy. For agriculture, farms are classified according to their dominant product type, crop vs. animal/livestock, and further sub-classified according to the type of crop or animal production involved on the farm. Farms may not easily fit into a single farm category because of diversified production, but they are still classified as a farm in one or another category, while the different farm products are recorded in that category. For example, the 2002 Census of Agriculture shows the beef feedlot farm type in Kansas as responsible for a substantial portion of the state's corn production, as the farms operating feedlots in Southwest Kansas grow much of the corn that they use for feed. NAICS classifies the other stages of the food system according to the stage of the commodity chain: manufacturing, wholesaling, retailing, and foodservice. These classifications suffer issues similar to those of classifying farms, in that many organizations operate in multiple of the categories, a good example being supermarket chains that operate wholesale warehouses for self-distribution to their stores. A significant problem in using this system to study the local food movement is that small farms often perform value-added services that would fall under the manufacturing, wholesaling, or retailing classes so that they can capture a higher proportion of the consumer's dollar. While these are substantial difficulties in applying the NAICS, any classification system would suffer failings similar to these with regard to dissecting food systems, and using the NAICS can be helpful and interesting in order to generate statistics about local food that can be usefully compared to the food system as a whole.

Using this system, the 357 local food participants sampled in this study have been classified as 151 farms, 15 manufacturers, 13 wholesale distributors, 108 retail establishments, and 69 foodservice operations. More detailed sub-classification within this broad classification reveals some interesting trends that fit well within the broad structural shifts in agriculture and food sales described earlier in this chapter. Table 2

below shows the distribution of local food farm participants into their various agricultural product types, and it is interesting to note the role reversal compared to the conventional farm structure in Kansas. Where Kansas overall has over 30,000 grain farms, 150 vegetable/melon farms, and 212 fruit/nut farms, the local food network in Eastern Kansas has 51 vegetable/melon farms and 9 fruit/nut farms versus only 3 grain farms. The overall Kansas ratio of grain to vegetable/fruit farms is about 83:1, while the local ratio of vegetable/fruit to grains is 20:1. This is an interesting reversal. The numbers for animal production are not as comparatively dramatic between conventional and local farm proportions, but non-beef meat production is proportionately more common in local food networks than in Kansas conventional meat markets. These local farms are responsible for the nearly 200% increase in direct sales between farmer and consumer between 1997 and 2002 in Kansas, and their farm type distribution certainly reflects demands for freshness and choice that have been attributed to consumers seeking local foods. Fruits and vegetable freshness and quality could arguably benefit most from local direct sales and short supply chains due to being highly perishable, while local food offerings are increasingly available for consumers seeking humanely raised animal products to find high quality and rare meats from farmers trying to free themselves from

Table 2: Local Food Farm Classification

Farm Type	Kansas Total (2002)	Local Network's Farms (2005)
Vegetable/Melon	150	51
Fruit/Nut	212	9
Grain	21,291	3
Beef Cattle Ranch	20,314	33
Beef Feedlot	1,506	1
Bison Ranch	--	9
Poultry Farm	299	7
Hog Farm	634	3
Dairy Farm	608	7
Beekeeper	--	9
Unclassifiable	--	19
Total	64,414	151

generic commodity chains. The availability of these local foods is provided through farmers markets for sure, but also through an increasing number of retailers and foodservice establishments served by emerging intermediate supply chains.

There are currently 73 farmers markets in Kansas, a remarkable increase from only 26 in 1987 (Hughes 1992), and they vary from informal gatherings of a few nearby gardeners in rural towns to bustling urban affairs with long wait-lists for vendors and sophisticated rules of governance organized by business associations. The number of farmers markets keeps growing, as does their popularity, and this is largely the driver of agricultural statistics showing a sharp increase in direct marketing of foods. At the same time, the 108 retailers and 69 foodservice operations sampled in my study shows an even larger number of commercial establishments offering local foods, and sales from these establishments of local foods are likely to vastly outpace farmers market sales in the years to come as these establishments offer increasingly convenient consumer access and greater choice of local foods by way of competing with each other. For now, the competition is largely among different store and restaurant formats catering to different consumer demographics.

Table 3: Retail and Foodservice Establishments Marketing Local Foods

Retailer Type:	Number:	Foodservice Type:	Number:
Urban Supermarket	62	Full-service Restaurant	57
Health Food Supermarket	5	Partial-service	3
Urban Grocer	5	Private Country Club	10
Urban Health Grocery	7	Catering	3
Urban Specialty Store	7		
Convenience Store	3		
Small Town Grocer	14		
Small Town Specialty Store	3		
Total:	106	Total:	73

Straight away, it seems that conventional supermarkets and full-service restaurants are the dominant non-direct final sale figures in local food networks. Table 3 above shows this dominance by simple numbers of participants. However, participants were

included in the network dataset whether they traded one product or one hundred, skewing any lessons learned from such a simple tabulation as the one above. Conventional supermarkets under competitive pressure from mass merchandisers are interested in local food marketing as a way of attracting customers with the convenience of one-stop shopping for both specialty products and conventional food purchases. Health food grocers, whether national supermarket chains like Whole Foods and Wild Oats or individual grocery cooperatives, and even some of the specialty food stores and health product markets, react out of concern about conventional supermarket stealing their customers with their local food programs. They up the ante with more extensive and comprehensive local food programs of their own to assure their customers that they are still the more special and ethical store choice. With their smaller numbers, and many times smaller size, coordinating with more local farmers can be easier for these specialized grocers than it is for their conventional supermarket chain counterparts.

Restaurants are not so much engaged in format wars as wars of identity. It is rare to find an independently owned upscale restaurant in Eastern Kansas without at least a modicum of locally sourced ingredients coordinated by a concerned chef befriending one or many local farmers. The extent to which these relationships influence the menu, presentation of food, and advertising discourse of the restaurant is a matter of fitting the theme of local with the other themes that define the character and identity of the restaurant. As upscale dining is about synergy between the meal and the identity and atmosphere of the restaurant, competition among restaurant participants is increasingly shaped by the art of integrating local food themes with the other stylistic themes of restaurants. Local food marketing presents restaurants, especially upscale restaurants, with ways of continuing to differentiate themselves from fast food, but also from each other, in a time when more consumption is taking place outside the home and health concerns, food quality, and food safety are increasingly shaping consumer decision-making.

Although many of the retailers and restaurants marketing local foods coordinate their local food supply directly with farmers, there is a small but growing business in intermediate distribution services and product manufacturing for local foods. Most of the

thirteen wholesale distributors sampled in this study are specialty distributors in the conventional food system, providing brokerage and distribution services linking, for example, the few produce and fruit farms of the region with supermarkets during prime harvest seasons. Others are specialty distributors that have grown from producer cooperatives, grassroots products of the local food movement providing specialty distribution services for a single producer cooperative along with a limited number of products from other local farm associates. General-line distributors – those that offer a full line of grocery and/or foodservice products to retailers and/or restaurants – are starting to get in on the local food buzz as well. One general-line foodservice company and one self-distribution wholesale company for a major Kansas City supermarket chain have both begun to coordinate with small farmers and farmer cooperatives for specialty products with a local food story. The demands of developing local food programs in supermarkets and of chefs buying local are opening up a value-added market for these distributors.

The value-added aspect of the market is also driving product manufacturing initiatives. Dairy farms are the leaders in some ways of movement in this sector, where a single farm or collective of farms invests in basic commodity processing facilities to create a value-added product from which can be marketed with the personal identity of the farm and with assurances for the consumer of the product's provenance. The micro-creamery is a model that has met with great success, where a small dairy farm bottles their own milk in old-style glass bottles with a catchy image of the farm on the bottle and sells the milk for double the conventional price in urban supermarkets. Farmhouse cheese is another successful dairy example, where cheese production is performed on the dairy farm, and once again sold wholesale through distributors or directly to retail stores for marketing as a specialty regional product with a story. Meats, fruits, and nut products are also increasingly common. This study's network includes fifteen of these processor/manufacturer participants.

2) Linking Participants by Food Type

The structural evolution of local food systems is of great importance to the future of the local food movement, and yet it is obscured by simple statistical figures of the

number and type of participants. Aggregate figures on the quantity and value of local foods produced and sold would be helpful in more closely investigating the growth of the movement, but many of those sampled for this study were wary of sharing financial details about the size of their accounts with other participants. However, it was comparatively easy to glean information about the types of local foods involved and the other participants with whom a given participant exchanged such foods. The structure of the network constituted by these local food exchange linkages has been used as a proxy for overall food system structure in this study, despite the lack of data for quantifying the relative importance of individual linkages.

As one form of basic structural analysis of local food systems, I have classified each of the 695 total local food exchange linkages in my dataset according to a simple and general commodity classification system. The following eleven food types were chosen: produce, white meat, red meat, milk, cheese, eggs, canned foods, bread, grains, honey, and a miscellaneous other category. Despite the fact that individual products within a given food type were rarely interchangeable with each other, a quality usually present in any conventional commodity, each of these categories can be treated roughly as a local food commodity, in that they usually require similar infrastructures and specializations among the participants in their supply chains. The following table outlines the number of linkages discovered for each food type among the local food participants sampled.

Some of the food types used in this classification are self-explanatory, while others deserve some description. Canned foods represents jams/jellies, salsas, juice and other forms of canned preserved and processed foods. Cheese includes those from cow's milk as well as goat and sheep milk, although the latter two are rarer and more isolated in the network. Grains include both unprocessed bulk grains and also processed forms such as flour. Produce includes vegetables, melons, tree fruits and berries. Red meat is primarily beef, but bison links are a significant portion of the total and Emu, Ostrich, and Elk are also present. White meat includes all poultry meat. The Other category is a miscellaneous combination of processed foods and snacks, including sorbet, tofu, snack mix, nuts, and herbal seasonings and nutritional supplements. Finally, the Unknown

category includes a few links for which direct sampling data of food type does not exist and food type could not be inferred.

Produce and red meats are clearly the most common types of foods found in local food networks, although milk, poultry, and eggs are also quite common. It is surprising in a land of such abundant grain production that so few local exchanges of grain were encountered, and this is a testament to the incommensurability between even small-scale production and the scale of sales involved in local marketing. It is also interesting that red meat is so common, yet there is very little use of feedlots in local networks, with only one true feedlot included in the network dataset. With this food type classification scheme in place, the remainder of this section will be dedicated to basic commodity chain structural and geographical analyses, treating each of the food types as a commodity group.

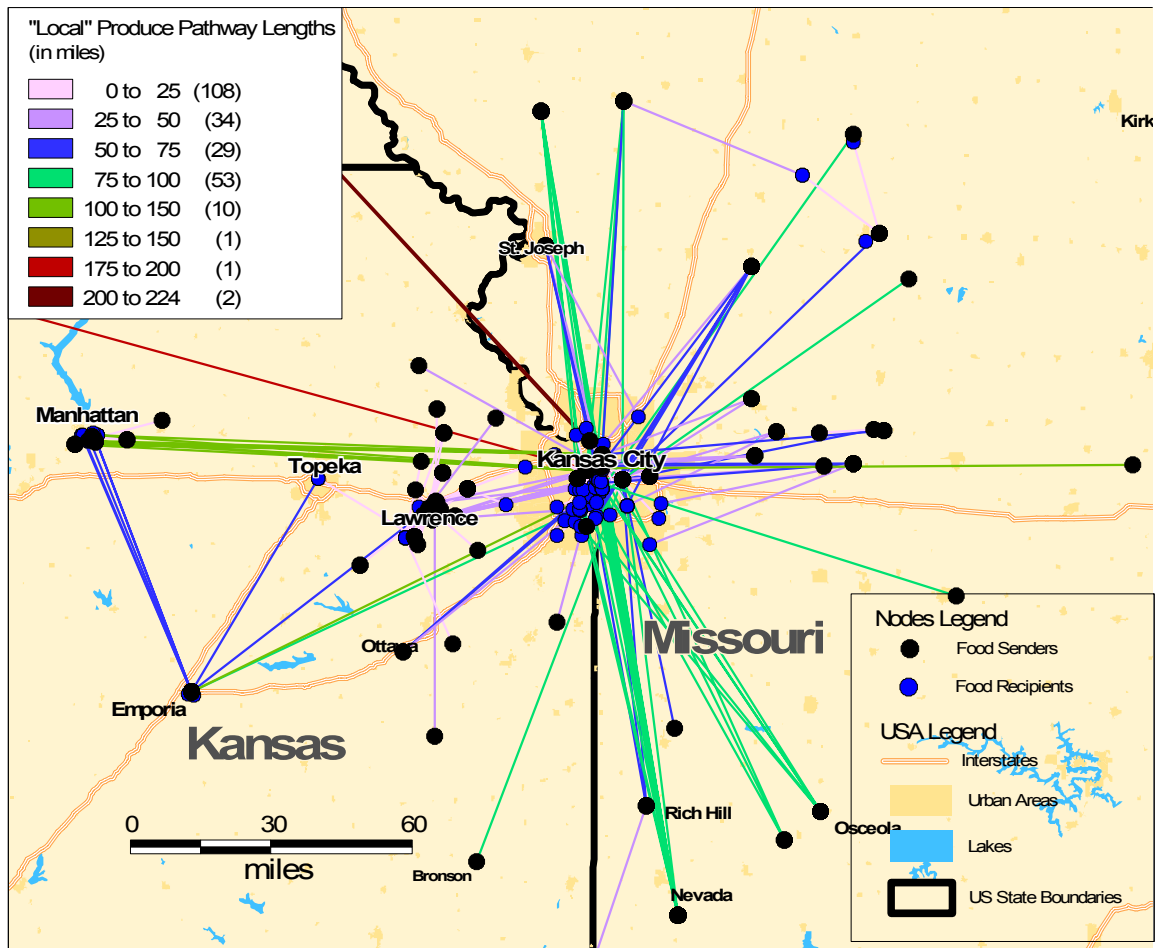
Table 4: Network Links by Food Type

Food Type	Number of Links
Bread	16
Canned Foods	9
Cheese	33
Eggs	53
Grains	9
Honey	13
Milk	86
Produce	237
Red Meat	118
White Meat	61
Other	30
Unknown	4
Total	669

Structures and Geographies of Local Food Commodity Chains

The relational database developed for the purposes of network analysis has also allowed for the representation of networks on maps using GIS. The database has been organized in such a way that the subsets of the full network can be viewed and analyzed independently of each other. Each of the network maps below are subsets of the full network shown above in Figure 11, helping to convey the geographical differences among different commodity chains, and also giving a sense of the commodity chain structure. In each of the following maps, black nodes represent food producers and blue

Figure 12: The Local Produce Network



Caption: Produce supply chains – Kansas City draws a robust network of produce, and there is an asymmetry between Kansas and Missouri suppliers. Missouri produce suppliers are greater in number and supply across greater distances than most of their Kansas counterparts. Part of this discrepancy may be accounted for by significant numbers of Kansas suppliers serving Lawrence, Topeka, and Manhattan markets instead of Kansas City. The suppliers for these other Kansas cities tend to be relatively near to these urban markets. The produce network as a whole is fairly diffuse compared with the other local food commodity chains.

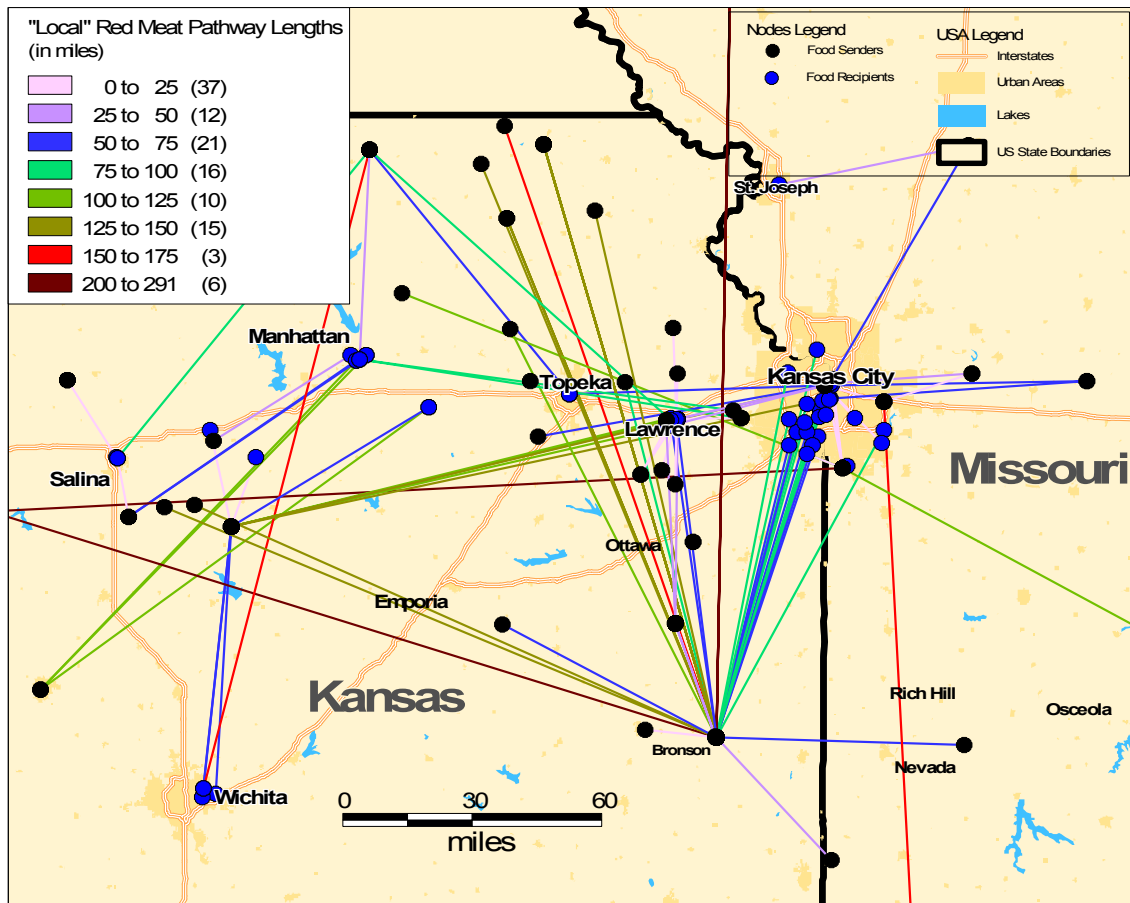
nodes represent food recipients, whether they are intermediaries, retailers, or restaurants. The links are also color-coded to represent varying link distances.

Note in the above map of produce connections in Eastern Kansas that, with the important exception of Kansas City, production tends to cluster around the region's cities. Climatic variation in Kansas can create major difficulties for growing produce, as these types of crops tend to fail under the unpredictable periodic temperature and precipitation extremes which are the hallmarks of temperate continental climate regimes. Two strategies are popular among producers to mitigate this negative environmental

influence in the realm of produce: 1) small scale production of high market value crops and very localized sales to maximize freshness and minimize transportation costs for deliveries of small-to-moderate quantities, 2) large scale resource intensive production of high seasonal demand generic produce, more distant marketing with higher transportation costs ameliorated by greater sales and lower land capitalization. Each of these strategies offers some insurance for producers against crops lost in weather extremes; the first relies on a diversity of low volume high value sales such that if a given crop fails others can compensate for this loss, and the second relies on playing the market through overproduction – when weather decimates their crop it usually affects other producers as well, and high volume production usually guarantees at least a minimal level of production that garners high prices in times of high demand and low supply. The reason I mention these strategies is that they partially explain the tendency of produce production near cities. The first strategy requires the cities as a sales outlet, and the second strategy requires nearby cities for labor and other necessary production resources. There are a great many more of the first type of producer than of the second in Eastern Kansas, but the amount of production from the few larger growers may surpass that of the smaller ones. Many of the relatively distant Missouri suppliers to Kansas City mix the two strategies. Furthermore, the intensive horticultural producers mix their marketing between local sales through direct relationships with retailers and consumers at farmers markets, but also through regional specialty wholesalers for the large bulk of product that exceeds the capacity of marketing the product as local.

The red meat commodity chains offer quite a different picture. Instead of clustering around cities, red meat production (nearly all of which is beef and bison meat) for local food markets does not appear tied to nearby markets as much as the produce network. There are some small and specialized producers near cities, especially Lawrence, but there are many more producers scattered in rural areas throughout Eastern Kansas. Some are small hobby farms supported by external income, others are conventional commodity farms that also produce a few head of cattle, and there is even one larger corporate beef operation offering natural beef products for local markets. Due to the need for economies of scale in processing and marketing, producer cooperatives are an effective

Figure 13: The Local Red Meat Network



Caption: Red meat, on the other hand, covers far greater distances. Slaughter and packaging are a necessary intermediate step in the commodity chain between farm and market. Average retail prices for all-natural, organic, or grass-fed meats require substantial sales levels to achieve lower costs of production through economies of scale in processing to remain economically viable. Producer cooperatives like the All-Natural Beef Cooperative in Bronson, and specialized large corporate beef ranches like Brunner Beef near Salina, and meat manufacturers like New Grass Bison in Kansas City are the most effective at achieving these scales, leaving the red meat network much more concentrated than the produce network.

organizational form where individual small farms pool their resources toward the expenses of processing and in building a larger market. The Tallgrass Prairie Producers discussed in the Introduction chapter was one of these producer cooperatives, and it was the vagaries of simultaneously developing markets and the related processing costs that drove them out of business. Rainbow Organic Farms in Bronson, KS has succeeded where the Tallgrass Prairie Producers failed by operating its own processing plant and developing a dedicated sales account with the Kansas City Hen House supermarket chain. This individual supply chain comprises a large portion of the network above in

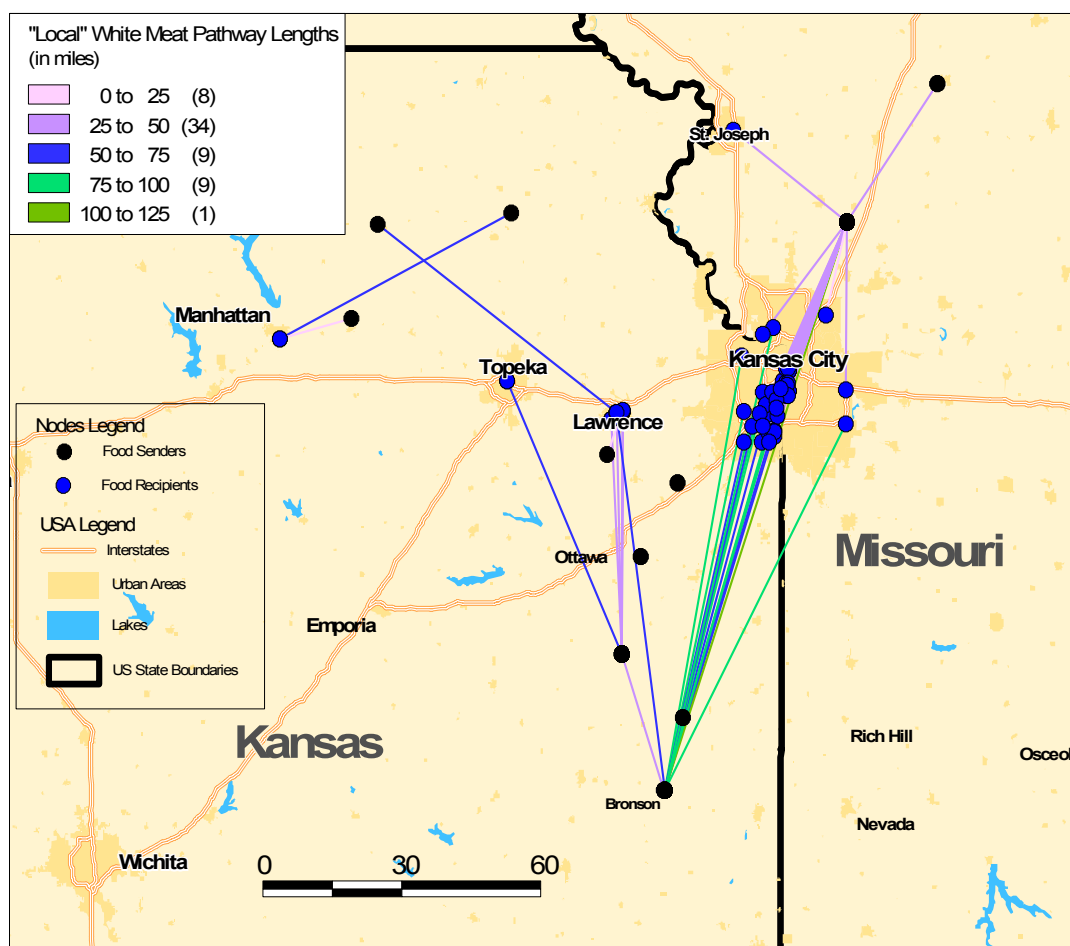
Figure 13. Cooperative processing and marketing has also been successful for two much smaller bison cooperatives, allowing them to market through restaurants, supermarkets, and even some convenience stores, in addition to some farmers markets. The specialized production and processing requirements for niche marketing of these specialty meats does not allow for high volume production, and instead financially requires obtaining a large price premium for all meats sold. This encourages both dense and concentrated networks, as seen above, and also prohibits very much mixing of local with conventional production chains for meat commodities.

One final observation is that local red meat supply is noticeably absent in the core of the Flint Hills of Kansas (extending South to the Kansas border from near Manhattan). The region has become one of the most productive cattle ranchlands in the world due the prevalence of never-tilled native tallgrass prairie and nutrients metabolized from limestone rock layers very near the soil surface. Conventional ranching rotations dominate the use of this native resource, as the high productivity has drawn large-scale and corporate ranching interests to the region since the time of settlement. Ranching in the Flint Hills is lucrative enough to hold alternative ranching models at bay, despite the fact that it is the ideal ranching ecosystem for year-round production of grass-fed, grass-finished beef and bison. The few landowners interested in niche ranching and beef processing find that there is very little local infrastructure to support such activities, an issue the Tallgrass Prairie Producers keenly felt. It is as unsurprising as it is disappointing to find very little penetration of local food production in this region, but Southeast and Northeast Kansas are better places to find alternative ranching models; industrial meat commodity chains have not yet abandoned Flint Hills ranchers the way they have ranchers in the other regions of Eastern Kansas.

One might suspect the picture for local poultry supply chains to be less concentrated than that of beef due to lower processing costs, but it is surprisingly more concentrated, and there are some interesting reasons for this. Perhaps the most important reason for local poultry market concentration is, paradoxically, due to the relative ease of processing compared with beef or bison. Poultry processing can feasibly occur at a relatively large scale on the farm itself, and federal regulations exempt federal

monitoring of facilities that process less than about 20,000 chickens per year. Therefore, it is not economically necessary for most moderate sized farms to form processing and marketing cooperatives to pool investment capital in such processing facilities, and a few well-organized and business-oriented farms seem to have taken the initiative. In addition to investing in scale on the farm, they have successfully marketed their chicken and eggs, as well as their farm brand, in major urban markets. There are some smaller chicken and egg operations, but they do not compete with these larger farms, as they direct their marketing toward grocery cooperatives in smaller cities with smaller customer bases and

Figure 14: The Local Poultry Network

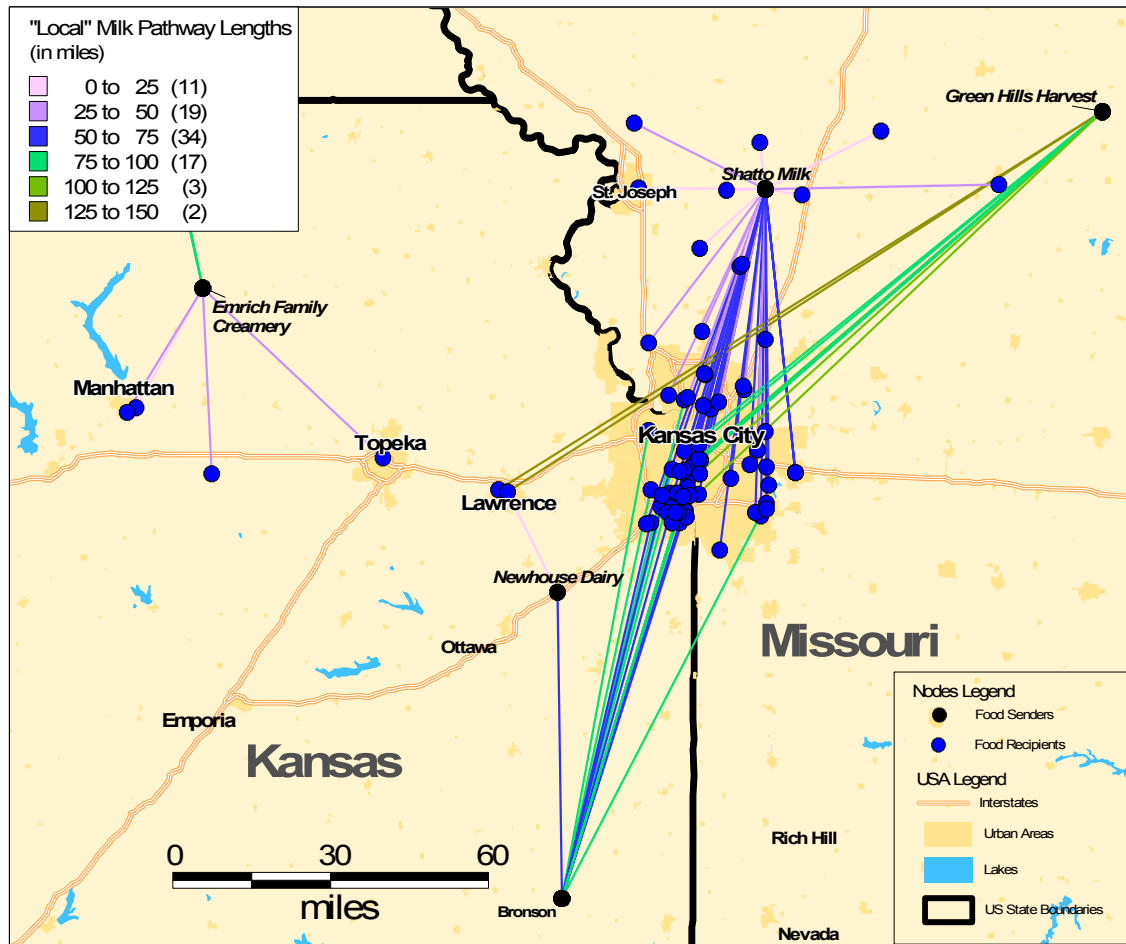


Caption: Poultry (almost universally chicken) and egg supply is monopolized by a few dedicated farms. The Kansas City market is monopolized by two farms: Campo Lindo, located North of Kansas City serves free-range chickens and eggs to a large number of independent restaurants and supermarkets in affluent neighborhoods; and Rainbow Organic Farms sells free-range chicken and eggs to the same supermarket chain as the all-natural beef cooperative it coordinates. Each of these facilities operates near the limit of the federal 20,000 bird/year exemption. Lawrence, Topeka, and Manhattan are served largely by small farms with only a few dozen or hundred birds as a cash-making ancillary business to the primary farm operations.

to restaurants with which they maintain strong personal relationships.

Milk supply chains follow a similar topology and tendency; however the milk market is even more concentrated. Dairy cattle require more space and more feed, and the necessary pasteurization and bottling equipment to meet state or federal regulations requires much higher levels of capital investment than chicken operations. While the

Figure 15: The Local Milk Network

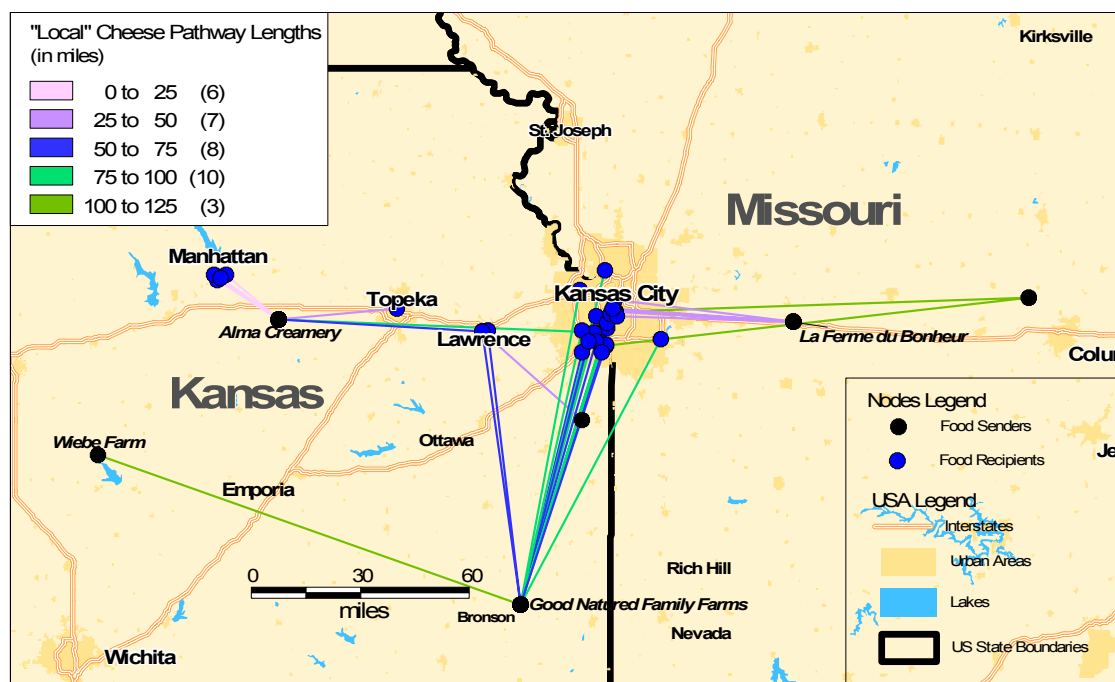


Caption: Milk supply chains also follow the pattern of concentration in the chicken network. The retail store market for bottled milk from these micro-creameries is highly segmented, with only one retail store offering more than one of the four brands of bottled milk. Emrich Family Creamery is the smallest, located Northwest of Manhattan, and serves a limited market of stores and Bed & Breakfasts from Manhattan and Topeka Northward to Lincoln, Nebraska. Newhouse Dairy, near Ottawa and Lawrence, sells through Rainbow Organic Farms in Kansas City Hen House supermarkets, as well as in the Community Mercantile cooperative grocery in Lawrence, KS. Shatto Milk, North of Kansas City, sells to Kansas City HyVee supermarkets and a number of rural grocers. Green Hills Harvest, Northeast of Kansas City, is the only micro-creamery offering certified organic milk, and it sells to the Community Mercantile as well as the more upscale supermarkets in affluent areas of Kansas City.

investment required is still significantly less than that required for cattle meat processing, it is high enough to put additional constraints on the emergence of competitive markets for local milk. Bottled milk from on-farm micro-creameries was sold in nearly every retail participant of this study, but the bottled milk originated from only four micro-creameries. Each of them was developed by a dairy farmer who opted out of conventional production and invested in their own processing as a form of value-adding their product. Each of these micro-creamery farms also has a well-developed brand name, and they have collectively successfully segmented the Eastern Kansas market, with only one retailer selling more than one of the brands.

As a way of adding value to milk into more durable and specialized products, the cheese production network exhibits some predictable traits. First, there are a slightly

Figure 16: The Local Cheese Network

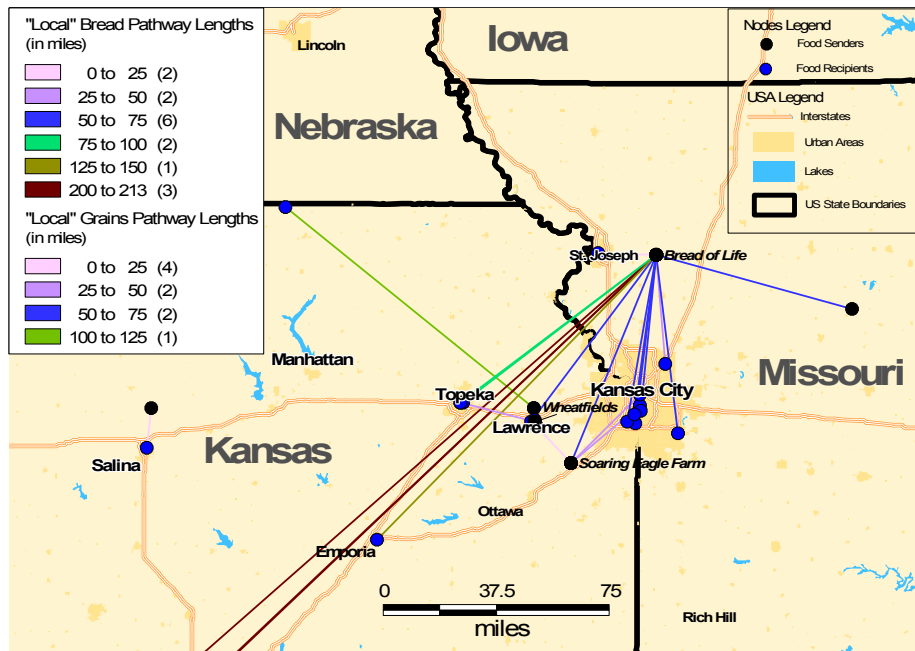


Caption: Cheese supply pathways. Rainbow Organic Farms is once again a major player in the cheese network, sourcing its cheese from a dairy farm Southeast of Salina and selling to the Kansas City Hen House supermarkets along with their meat and egg offerings, but also selling cheese to a few locations in Lawrence. Alma Creamery, between Manhattan and Topeka, purchases milk in bulk and markets its cheese through a variety of distributors, as well as individually to a few cooperative grocers, restaurants, and specialized retail outlets. Other producers are small batches of sheep and goat cheeses, mostly sold through farmers markets, but sold to restaurants as a supplement to direct marketing.

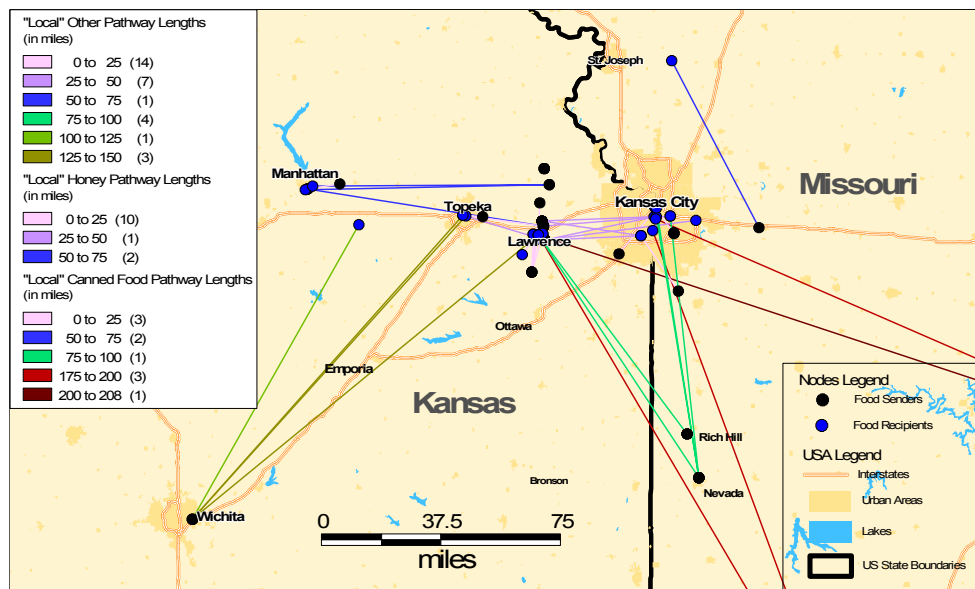
greater number of producers, and the number of cheese products proffered by these producers is quite diverse. There are traditional colby and cheddar cheeses as well as highly specialized goat cheeses and new cheese forms such as cheese nibbles. Second, there is also more diversity in terms of producer type, with a few small farms offering non-cow milk products, a couple middle sized dairy farms that produce cheese with only a portion of their milk while selling the rest on the conventional milk market, and even a dedicated cheese-making facility that purchases most of its milk from conventional distribution cooperatives and only a small portion from local farms outside the mainstream. There is significant investment required for cheese-making, but, unlike a micro-creamery, the scale of investment is more flexible with regard to the desired scale of production. The adjustable scalability, along with potentials for product specialization, helps to prevent consolidation as was seen in the poultry and milk networks.

Kansas being the top ranked producer of wheat in the U.S., one might expect a much higher level of local grain trade than one finds. It is a testament to the power of basic commodity markets (Cronon, 1991) that there are virtually no small-scale grain farmers selling locally in Kansas. It is also a testament to the productivity of even mildly intensive wheat farming that ultimately dooms non-commodified local wheat. Soaring Eagle Farm is the most active farm within this study marketing wheat outside conventional channels, and even this farm sells approximately only five percent of its total wheat output to restaurants and direct to consumers. The rest is sold on the certified organic wheat market through conventional grain wholesalers. The farm does supply all of the wheat used in the Bread of Life Bakery, and a healthy amount of that used in Wheatfields in Lawrence. Local sales by Soaring Eagle Farm might be higher if its operator decided to sell through supermarkets, but the difficulties of obtaining shelf space and working with supermarkets are prohibitive for this individual farmer. Even for niche grain production, the scale of production is a significant obstacle to substantial marketing outside conventional channels, as cultivating a large enough market to substantially alter the farm's marketing focus would require more time and expertise than an individual full-time farmer could manage.

Figure 17: The Local Bread/Grain & Durables Networks



Caption: Grain and bread supply chains. Wheatfields is an upscale sandwich shop and bakery in Lawrence mainly serving upscale dining restaurants as well as the public. Bread of Life is a health-food bakery selling all-natural, all-organic, all-whole grain breads through retail stores in Kansas and Missouri, and it sources all except a few trace ingredients “locally.” Soaring Eagle Farm is one of the only suppliers of “local” ground wheat in the study area, and the only one serving the Kansas City market.



Caption: Canned foods and other durables. Central Soyfood in Lawrence makes organic Tofu and other soy products, sourcing soybeans from Kansas farmers. They sell extensively throughout Kansas City, Lawrence, and Topeka to supermarkets and restaurants. Wyldewood Cellars near Wichita makes wine and elderberry concentrate. A Mennonite group in Rich Hill, Missouri sells salsas and canned vegetables through Kansas City supermarkets and the cooperative grocery in Lawrence. A producer cooperative in Nevada, Missouri processes and packages a native species of pecan with significant sales in Eastern Kansas, but sales at the national level as well.

Canned, processed, and otherwise durable food goods are the final collection of linkages that are important for a comprehensive accounting of this study's local food network. They were difficult to chart through the chosen snowball sampling methods; the commodity chains were the longest and most obscure of all the food types, and it was difficult to simply verify that all ingredient procurement and production in the food chains were local. There were a great many products processed, manufactured, and/or branded by locally owned companies and in local facilities, but the vast majority of these foods used ingredients purchased from highly commodified national and global markets through major commodity wholesalers and distributors, if not direct purchases from area supermarkets (in the case of small-scale and hobby food processing). Additionally, the supply chains were complex, often featuring combinations of sales through farmers markets, local retailers, the internet, and/or wholesale distributors. It was difficult to isolate local relationships from extra-local exchange arrangements in these distribution and marketing systems. The criteria for inclusion in the network was maintained throughout this network – that one is able to directly track the provenance of local products – but it is clear that local is much more nebulous and vulnerable in meaning and practice for durable manufactured foods than for most others.

Figure 17 displays the durable processed food chains I was able to confirm as fully local in terms of food provenance throughout the supply chain. Among these, it is clear that the durability of food empowers the distancing of food connections in local foods just as it has in the legacy of conventional food chains. These linkages commonly push the boundaries of local beyond that of the other local commodity chains. They do not conflate social relations with spatial relations so much as conflate social relations with a spatial metaphor. In the case of durable foods, products with quaint branding and a story that market outside conventional wholesale markets are often conflated with the language of local in spite of the distant and obscured relations at the heart of their production.

What is “Local”?

Based on visual inspection of Eastern Kansas local food connections, the relation between food chain lengths and localness seems to be rather pliable, and it seems

important to perform some quantitative analysis of food chain lengths to test such visual interpretations. The following are results of some quantitative analysis, derived from calculating the distances of each individual link in my dataset. Aggregate link counts are given for each food type, as well as the mean link distance for each food type and the average distance for all local food links in my study. In addition, a graph displays a histogram for comparing link distance distributions for each food type.

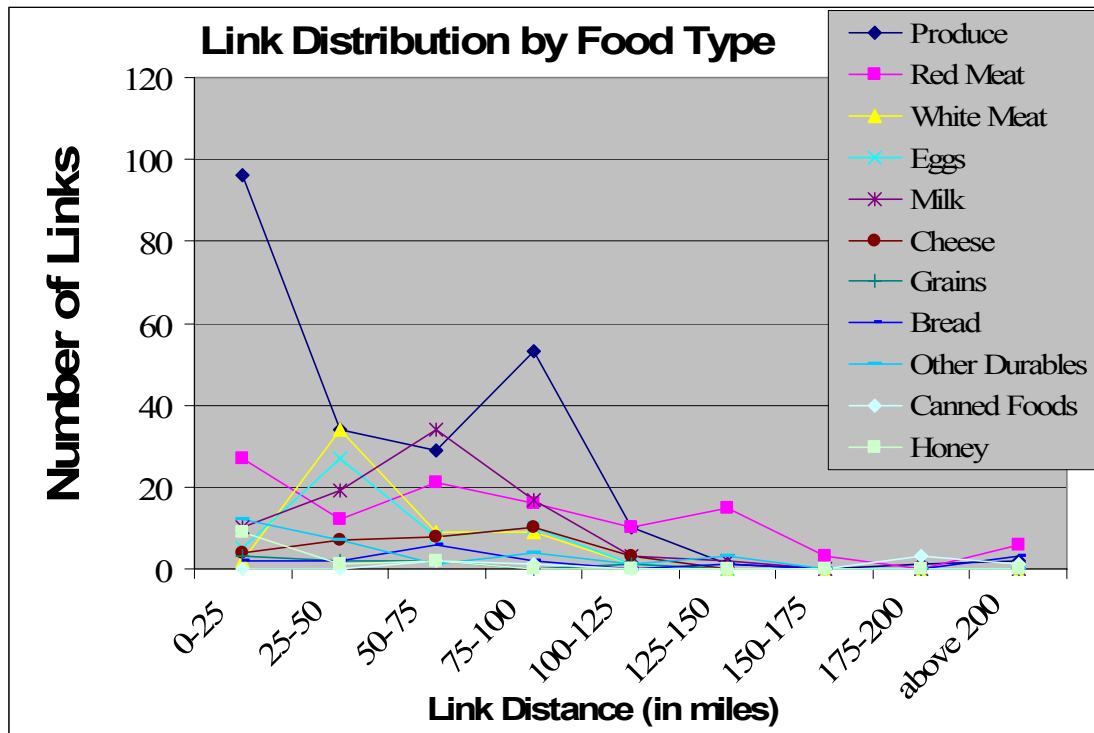
Comparing average link distances by food type is an interesting exercise. The average link distances are surprisingly consistent, with only three categories ranging beyond one standard deviation. There are some distances that are obscured by this form of analysis, however. For some food types a single link represents the entire length of a food chain, while for others there are multiple links involved. This becomes especially important in the case of red meat, where the average link length is 80.1 miles and there are at least two links in the path of any food in this sector – from the farm to processor, and from the processor to store or restaurant. Calculating average food chain length would be nearly impossible with my level of data, as any given product would have so many pathways of differing lengths, but suffice it to say that the average food link data can easily underestimate total food miles to the point of consumption for some food types. In fact, it is more likely, at least in the case of red meat, to be multiples of this average.

Examining link length distribution for different food types is another interesting approach in grappling with the kinds of distances involved in local food supply chains. The important aspect of comparison here is not the different levels of linkages between food types at any given distance; rather, each food type has a distinctive signature pattern to its line graph, indicating a signature distribution of distances between trading partners. For instance, produce has disproportionate numbers of linkages between 0-25 miles and 75-100 miles as compared with the amounts between those two ranges, and the number sharply drops above the 100 mile limit. Red meat, on the other hand, maintains a much more even distribution of link distances out to as far as 150 miles before linkages start to decline. This would lead one to hypothesize that local produce trade is more highly dependent on distance to market than red meat products.

Table 5: Distance Distributions for Local Food Links by Food Type

Statistics	Produce	Red Meat	White Meat	Eggs	Milk	Cheese
Count	226	110	55	51	85	32
Mean Distance (miles)	45.8	80.1	49.4	49.9	58.5	66.6

Statistics	Grains	Bread	Other	Canned Foods	Honey	Weighted Average
Count	8	16	28	7	12	
Mean Distance (miles)	42.7	83.6	44.2	139.9	21.2	56.6315873



Surprisingly, poultry shows a dependency on distance to market not found in red meat, despite the fact that each requires similar stages of production. Milk distances follow the same pattern as with white meat. It would appear that there are local food logics at work in milk and chicken sectors that advance a close-but-not-too-close pattern between production and their markets, logics that are not present or find only limited power in the red meat sector. As was mentioned in the discussion above of each commodity chain, local milk and poultry share common production characteristics. Farms process poultry on the farm, and the dairy farm participants pasteurize and bottle their milk on the farm as well. Distribution from farm to store or restaurant becomes the primary distancing relationship, and keeping distribution distances at a minimum is both desirable and feasible for both poultry and dairy farms marketing their products locally.

By performing necessary processing on the farm, the forces affecting the distances between production and consumption are very similar to those of produce farms, especially as milk and poultry are sensitive to transportation conditions just as is produce.

The necessity of off-farm processing of red meat creates a very different cost structure to the production of red meat products. There are the costs of an extra leg of transportation, but also the costs of processing. Processing costs are internalized in the costs of the farm operation for poultry and dairy farm participants, but they are external costs for red meat producers. Farm-processor relationships can be tricky, and finding a good processor to perform a quality, consistent, and price-conscious service often requires distant and circuitous pathways for such commodity chains. Without a regulatory exemption for on-farm processing of poultry, one would expect poultry commodity chains to exhibit some of the same geographic tendencies of the red meat chains.

How truly local is local food? The answer to this question lies largely in the flexibility of farmers to define the terms and processes of production and distribution for a given commodity chain. The statistical analysis and line graphs above point out different distancing tendencies among different local food types, and correlations exist between the rules and decisions shaping local food commodity chains and the distance distributions of each food type. The results suggest that the number of intermediate stages in a commodity chain between producer and consumer, as well as the market structure of each of those stages, has a significant impact on the distancing of links in a local food network. Farms of all types and of all distances from concentrated consumer markets are interested in developing commodity chains to serve the growth of the local food movement. All things being equal, a closer proximity between production and consumption will be more economically viable, but all things are rarely equal. Regulatory hurdles, on-farm processes, and the personal and professional relationships between farm and downstream commodity chain participants usually override the preference for closest proximity. Just as the geographical redistributions of the local food movement thrive on abandoning certain structural intermediaries of conventional food

systems, the geographical trends of local food also depend on the structural choices and requirements of each individual local food chain.

C) Conclusions

This chapter has grappled with some of the basic characteristics of local food systems in Kansas. It has provided a basic analysis of the types of participants in such systems and the types of foods included under the banner of local food. As a byproduct of this project's sampling methodology, local food systems in Kansas have been represented as a network, or a collection of networks as the full network is subdivided in order to grasp variations in its structure. This network is an emergent social construct, growing from the efforts of participants to escape the marginalization they experience in conventional food systems. It is not surprising to find that the characteristic participants and foods of the local food network deviate from the norm in conventional Kansas food systems. Local food occupies some of the niches that the regional specialization of conventional foods within Kansas has abandoned.

The historic production of vegetables and fruit in Kansas has atrophied since 1930 (Kindscher 1982), shifting toward large-scale grain and livestock production in the interim years. Produce was sourced through increasingly concentrated and sophisticated supply chains from distant regions, and even globally in recent decades. New crop varieties resistant to stresses of transportation reduced quality in terms of taste and freshness, while increasing uniform appearance. Food safety has become a major concern for these national and global supply chains with frequent regional disease outbreaks attributed to concentrated individual sources of improperly grown or handled produce. Produce from small local farmers has become more desirable, especially at farmers markets, but the local food network in this study shows that such interest carries over into supply chains through retailers and restaurants as well. While there is substantial overlap between the local and conventional regional and seasonal commodity chains for produce through the largest local horticultural producers, there is also a large population of smaller farms with ecologically intensive production methods that increasingly define local produce supply chains.

Produce is not alone, as meat and eggs, dairy, and even some durable foods are also the focus of alternative food supply chains. The scale and concentration of conventional slaughter facilities and milk wholesale cooperatives prevents substantial innovation within their ranks. This forces marginalized farmers toward grassroots investments in their own infrastructures to produce quality specialized products for discerning consumers. They seek increasingly rare small town processing facilities in the case of large animal meats, or to invest in their own in the case of poultry, milk, and a wide array of durable and/or processed foods. Taste, nutrition, safety from food-borne illness, support for family farms and small business, and support for local economic base are among the appeals that help these producers to garner the price premiums that pay for their proportionately higher processing costs. Direct relationships with consumers, retailers, and restaurants are critical for these producers and cooperatives in retaining a high proportion of these price premiums, for the most part precluding wholesale marketing through distributors. Fiscal concerns for these producers also create incentives for exploitative labor conditions, the details of which escaped the scope of this study, but which deserve further inquiry. Another concern and interest lies in that the local sourcing of inputs like feed grains and processed food ingredients often occurs in parallel with conventional sources for such producers, and closer examination is required to understand the proportion of final foods that are actually derived from local farm ecologies.

The general geography of these farm ecologies and their final sales counterparts is certainly uneven over space. Local food activity tapers dramatically along with distance from the large Kansas City metropolitan area. This is partially a reflection of the lack of concentrated consumer base in small cities and rural areas outside far-Eastern Kansas, but it is also a reflection of the continued dominance of large-scale conventional agriculture in Western and Central Kansas. There is certainly strong circumstantial evidence of dominant conventional agricultural land use stifling local food development in the Flint Hills of Eastern Kansas, similar to what has been outlined in the “belly of the agro-industrial beast” in Central Washington state (Selfa and Qazi 2005). Local food production in Eastern Kansas is definitely skewed toward marginalized smaller-scale

family farms, either as hobby or as gainful farm enterprise, consistent with the lessened dominance of conventional agriculture in parts of Eastern Kansas. Consumption is mainly centered on centralized urban populations. Direct sales and final sales through retailers and restaurants are the predominant form of marketing, although agri-tourism, internet sales, and wholesale marketing are also evident, but not featured in this study's networks.

The distance of links and the geographies of local are also by-products of the interactions between commodity chain developments and the materiality of the products themselves. The durability and portability of the food products greatly affects the ability to transport them across large distances. Although investments in some kinds of infrastructure can extend the durability of perishables, paying for the cost of such investments requires a larger scale of sales either in terms of higher value products or higher volume sales. Great variations exist in the balance of these factors among participants in local food networks, especially visible in the wide variation of produce link distances in the above discussion. While such variations may be interpreted as simply a form of market differentiation in the case of the produce network, the concentration of other commodity networks can amplify the effects from the choices of a few, shaping the emerging market structure and geographical distributions of local food. All local foods are certainly not created equal, and there is danger not only in conflating spatial relations with social relations (Hinrichs 2003), but in conflating the spatial term "local" with a singular order of spatial relations when it in fact represents a multiplicity of spatial relations.

There are few common themes for all participants and all links in the network analyzed in this chapter. However, these few help in defining exactly what is considered local food in practice. Each local food is discursively framed as a grounded alternative to standardized, distant, anonymous, and/or unknowable conventional and global food systems. The way this is put into practice in food system structure is by short-circuiting supply chains to exclude traditionally powerful intermediaries such as conglomerated food processors, manufacturers, and large-scale distributors. Local foods shorten supply chains, facilitated by supplanting anonymous relations with known relations, or at least

foods with a story. Direct marketing through farmers markets and agri-tourism is featured prominently in this emerging local food economy, but direct marketing is also inconvenient compared with conventional retail and foodservice options. The face of local food is increasingly represented through restaurants, supermarkets, and other venues for food purchase and consumption as a way of expanding sales and capitalizing on shifting consumer demands and increasingly mobilized producers. This scaling of local food introduces new complexities as highly embedded and information-intensive producer-consumer relations are grafted into conventional food institutions through both activist insurgency and capitalist appropriation. The shortness, fairness, and transparency of these new supply chains are in question as the uncertainties inherent in building supply chain relationships encourage compromises in values, alliances, and communication.

This general overview of local food systems does much to show how local food is not a typical marketing buzz, but an actual economic force restructuring food systems. Restructuring of society-wide food systems under this guise is currently very marginal, but local food systems are growing both in terms of size and intensity. To grasp the politics and geographies of these developments, it is important to ask more specific questions about the nature of existing local food networks. For instance, how are individual relationships and links in the network formed and sustained as durable pathways for the production, exchange, and consumption of local foods? What are the clusters of common interest and common practice within the broader local food network, and what does it mean for a participant to be a part of one of these communities and not part of another? When and where do contradictions arise between the themes of localism and the other dominant themes of food systems, especially at the interfaces between local and conventional food systems? What are the practical politics of resolving contradictions, of compromises, in local food systems, and how do these compromises weave local food commodity chains together into a common network? What are the sites and places of local food, and how do the politics of compromise shape these sites, including the relationships among different commodity/food types? What can we expect from growing local food systems in the future based on their existing topologies and politics?

Efforts toward answering these kinds of questions have led to the combination of analytical approaches used in the following three chapters. Conventions theory will provide a basis for evaluating individual links in the network for the expanded modes of socialization that shape the types of foods and the possibilities of production inherent in such linkages. Network analysis will provide a quantitative basis for identifying communities within the full local food network, and this analysis will feed a discussion of geographical patterns in the network's structure and social relations. Analyzing the productions of space related to local foods will further inform conclusions about the geographical evolution of local foods with an eye toward the place-based politics of which such foods and their underlying social relations are a part. As a whole, this body of work provides a rich perspective on the local food networks of Eastern Kansas toward answering some subtly complex questions: what is local food, and what is the likely future of local food systems?

