Missouri General Assembly
Joint Committee on Urban Agriculture

Committee Report

December 2012

Representative Jason Holsman
Committee Chairman

Senator Jim Lembke
Committee Vice-Chairman

Missouri Joint Committee on Urban Agriculture

Missouri General Assembly

December 2012

The Honorable Jeremiah 'Jay' Nixon
Governor of the State of Missouri
Missouri Capitol
Jefferson City, Missouri

The Honorable Robert Mayer
President Pro Tem
Missouri Senate
Jefferson City, Missouri

The Honorable Timothy Jones
Speaker
Missouri House of Representatives
Jefferson City, Missouri

Dear Governor, Mr. President and Mr. Speaker:

Pursuant to your charge and the provisions relating to Senate Bill 356 signed into law in the first regular session of the 96th General Assembly your Joint Committee on Urban Agriculture conducted a series of five public hearings across Missouri. The committee solicited testimony from the general public, state departments, state agencies, political subdivisions of the state, and other as deemed advisable.

Sincerely,

Representative Jason Holsman
Chairman

Senator Jim Lembke
Vice-Chairman

Missouri General Assembly
Urban Agriculture Report

Joint Committee on Urban Agriculture

Representative Jason Holsman
Chairman

Senator Jim Lembke
Vice-Chairman

Letter from the Chairman

"Agriculture is our wisest pursuit, because it will in the end contribute most to real wealth, good morals, and happiness."

- Letter from Thomas Jefferson to George Washington (1787)

The following report was created through the collaborative efforts of many talented and dedicated public servants. The legislative work yet to be done will not be easy, but providing a sustainable, local source of food is paramount for the continuation of our society. Simply put, everyone has to eat. It is the most fundamental of human actions.

Farmers built our nation, but over the past century we have lost our connection to the land where our food is grown. Many children now live in food deserts where it is easier to obtain a bag of potato chips than a fresh tomato. We can and must do a better job providing access to nutritious, locally grown food to improve our health. This committee's effort is the first step to accomplishing this goal in Missouri.

There is a national movement underway to acknowledge, celebrate, and re-educate metropolitan areas on the importance of local agriculture. The locally grown food movement is investigated in the following report. We are pleased to present our findings on our study of urban agriculture in the state of Missouri. Please direct questions to the Office of Jason Holsman (573) 751-6607.

Sincerely,

Representative Jason Holsman
Chairman

Senator Jim Lembke
Vice-Chairman

Joint Committee on Urban Agriculture

Senator Maria Chappelle-Nadal

Representative Lincoln Hough

Senator Kevin Engler

Representative Tom Loehner

Senator Jolie Justus

Representative Stacey Newman

Senator Will Kraus

Representative Zachary Wyatt

TABLE OF CONTENTS

Statutory Creation of the Joint Committee on Urban Agriculture

Governor Jay Nixon signs Senate Bill 356 in Mexico Missouri on July 11th re-authorizing the Joint Committee on Urban Agriculture.

Governor Jay Nixon reauthorized the Joint Committee on Urban Agriculture by signing Senate Bill 356, an omnibus agriculture bill sponsored by Senator Brian Munzlinger (R-Williamstown), on July 11th, 2011. Prior legislation, sponsored by Representative Holsman, authorized the formation of a Joint Committee on Urban Farming, which can be found in House Bill 1848 from the 2010 legislative session. However, new legislation in the 2011 session was required to move forward with official state hearings. SB 356 stipulated that the committee must conduct no less than three public hearings in three separate urban centers across Missouri. In addition to conducting these public hearings, the committee is responsible for submitting a report of its research and legislative recommendations to the Governor of Missouri, Speaker of the Missouri House, and President Pro Tem of the Missouri Senate no later than December 31, 2012.

Specifically, the bill charged the committee with generating recommendations regarding the impact of urban farm cooperatives, vertical farming, and sustainable living communities in Missouri. The committee is statutorily obligated to, but not limited to, address the following: trends in urban farming, existing services, resources, and capacity for such urban farming, the impact on communities and populations affected, and any needed state legislation, policies, or regulations.

The "Urban Farming Advisory Subcommittee", composed of eight members selected by the Director of the Department of Agriculture, augments the work of the committee by attending the public hearings, conducting independent work sessions, bringing expertise knowledge in their respective fields to the committee, and assisting the committee in drafting a substantial portion of the Urban Agriculture Report.

Disclaimer Statement

All information presented is presumed to be factually accurate at the time of submission and is cited wherever possible. Subadvisory members and Missouri government departments provided the content of most chapters with minor editing changes from the Office of Representative Jason Holsman. Chapters without bylines were researched and written by the Office of Representative Holsman. All pictures, figures, and graphs were reprinted with relevant citations when applicable.

Editing Credits

This report was aggregated, organized, and edited by the Office of Representative Holsman. Dan Bryar was the contributing editor with assistance from Nathan Cummins and Chris Vick. For further questions or comments on the Missouri Urban Agriculture Report, please contact the Office of Representative Holsman.

Contact Information:

MO House of Representatives
201 West Capitol Avenue
Room 105B
Jefferson City MO 65101

573-751-6607

Jason.Holsman@house.mo.gov

Dan.Bryar@house.mo.gov

Introduction

By Greater Kansas City Food Policy Coalition (G.K.C.F.P.C)

What is the food system? It involves all of the steps taken and materials used in feeding us. It encompasses food producers (farmers), food consumers (eaters), and all of the industries and actions that link them together. Every community has a food system, whether we are aware of it or not. Decisions are made every day by government agencies, businesses, and organizations that directly or indirectly affect how and where our food is grown, how it is processed, distributed, purchased, prepared, and protected, and how it is served in our homes, schools, and restaurants.

Importance

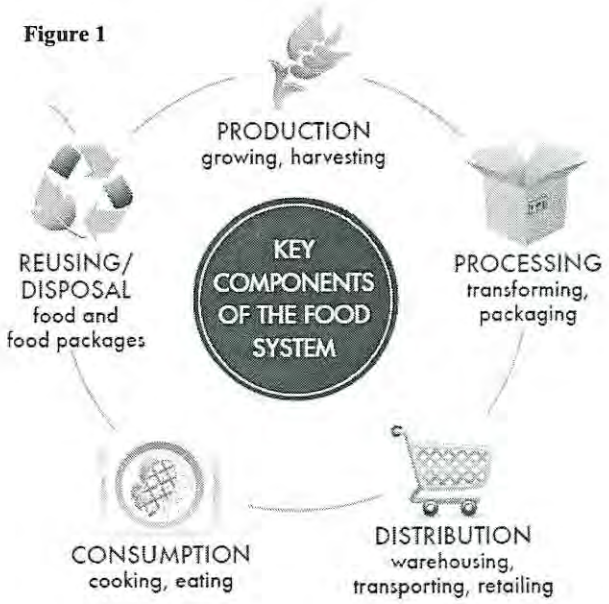
The food we eat affects nearly every aspect of our lives. If we do not have enough of it, we suffer food insecurity and malnutrition, which can negatively impact our job performance, our children's success, and our family's physical and emotional well-being. If we eat too much unhealthy food, we are at risk for obesity and a host of related health problems that have a significant impact on our economy and health system.

Having a strong source of local and regional foods makes our region more self sufficient and more insulated from food safety issues and price fluctuations involving global and national food sources. As well, local food production is a more sustainable and environmentally friendly solution to importing food from long distances. A strong local food system also keeps revenue in our community and provides opportunities for small and mid-sized agribusinesses to develop and expand.

The Issue

Kansas City relies heavily on foods produced outside of the region that are often highly processed and are transported great distances by a few large agribusinesses. Due to the vast mileage between production and plate, food prices are closely tied to transportation costs. Large-scale, centralized processing plants can lead to concerns regarding food safety. For example, in August 2011 Cargill Meat Solutions Corporation recalled over 35 million pounds of ground turkey due to salmonella contamination.[1] Large-scale recalls such as this are endemic to the centralized processing plants that our current food system depends on to meet national demand. Locally produced foods however can be a safe, economical, and sustainable alternative, but are often difficult to find outside of seasonal farmers' markets.

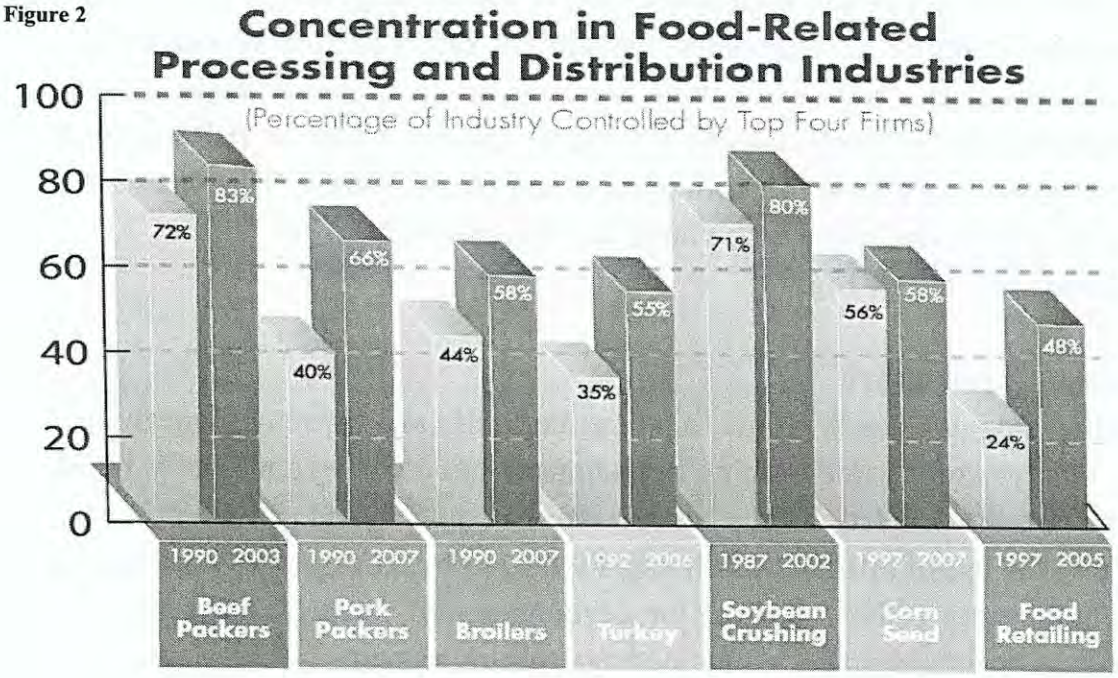
Figure 1



A food system involves not only farmers and consumers but also processing and distribution centers to get the food from producer to consumer. Regional and local distribution systems are critical barriers to moving local food within the Greater Kansas City region. Since adequate food distribution or processing centers for local producers are non-existent in the Greater Kansas City area, local farmers have no efficient way to aggregate their goods to sell to institutions and grocery

stores. The national food distribution system tends to drive small companies and farms out of the market, but local farmers are unable to grow their businesses without safe, accessible, and efficient ways to reach consumers' tables. GKCPFC supports regional food processing and distribution infrastructure to better connect farmers to consumers and to scale up local food capacity across Greater Kansas City.

Figure 2



Definitions

Aquaculture
Also referred to as fish farming, aquaponics is the practice of raising fish, shellfish, and/or other aquatic plants in a controlled environment for the purposes of augmenting the natural supply.[2]

Aquaponics
Aquaponics is the combination of aquaculture (fish farming) and hydroponics (soilless plant culture). In aquaponics, the nutrient-rich water that results from raising fish provides a source of natural fertilizer for the growing plants. As the plants consume the nutrients, they help to purify the water that the fish live in. A natural microbial process keeps both the fish and plants healthy. This creates a sustainable ecosystem where both plants and fish can thrive.[3] For further information see Chapter Eight.

Biodynamic Agriculture
Originating from the Greek words 'bios' meaning life and 'dynamos' meaning energy, this type of organic farming has a holistic mindset that attempts to build upon and strengthen relationships between the soil, plants, and animals by prohibiting the use of artificial fertilizers. Pioneered by Austrian scientist Rudolf Steiner in the early 1900s following the development of chemical fertilizers, biodynamic farmers build self-contained agricultural systems where plants, animals and mineral resources present in the environment harmoniously bolster crop production.

Brownfields
According to the United States Environmental Protection Agency (EPA), brownfields are real property where the expansion, redevelopment, or reuse of the property may be complicated by the presence or potential presence of a hazardous substance, pollutant, or contaminant.[4] Brownfields interfere with repurposing blighted urban lands into dedicated community gardens or urban farms. During committee hearings, it was suggested on multiple occasions that tremendous

benefit would come from making the "Missouri Brownfield Redevelopment Program," as administered by the Missouri Department of Economic Development, available for repurposing lands in urban cores specifically for agriculture.

Cottage Food Laws

Cottage Food Laws are statutes that would make it legal for a citizen to produce low-hazard food products from a residential kitchen for direct sale to consumers at farmers markets, farm markets, roadside stands or other direct markets. A residential kitchen is defined as the kitchen of the person's primary domestic residence. Typically, as is the case in other states that have enacted 'Cottage Food Laws' (ex. Texas,[5] Michigan[6]), the products cannot be sold to retail stores, restaurants, over the Internet, by mail order, or to wholesalers, brokers or other food distributors who resell food. Other states have implemented a ceiling for the amount of revenue a 'Cottage Food Enterprise' is able to make. For example, Michigan stipulates it must be under $15,000 annually. Types of food that are generally allowed under 'Cottage Food Laws' include: jams, honey, baked goods, salsas, high acid pickles, breads, vinegar, dry soup mixes, and dehydrated vegetables or fruits, to name a few.[7] However, Missouri statutes currently do not authorize cottage food enterprises.

Community Supported Agriculture (CSA)

CSAs are 'direct-to-consumer' arrangements where consumers purchase a share of a farmer's harvest in advance that is distributed either by delivery or pickup, generally weekly, during the growing season. CSAs allow for shared risk, as members most often pay CSA dues in the winter months giving farmers capital to buy seed and equipment for the coming spring. CSAs emerged in the United States in the late 1980s in response to the urbanization of agricultural lands, modeled largely after practices found in Japan and Switzerland from the 1960s.[8] CSAs have since spread across the nation and in 2010 the USDA estimated that there were 3,600 CSA operations in the United States.[9]

Compost

Compost is an organic resource that improves the chemical, physical, and biological characteristics of soils or growing media. It contains plant nutrients but is not typically characterized as a fertilizer. Compost results from the controlled, biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth. See Chapter Seven for further information on compost and the Missouri composting industry.

Evapotranspiration

Evapotranspiration is the water lost to the atmosphere from the ground surface, evaporation from the capillary fringe of the groundwater table, and the transpiration of groundwater by plants whose roots tap the capillary fringe of the groundwater table. Evapotranspiration was discussed in the context of vertical farming water recovery systems. See Chapter Nine for further information on evapotranspiration relation to vertical farming structures.[10]

Farmers Market Promotion Program (FMPP)

FMPP is a USDA program created through an amendment to the Farmer-to-Consumer Direct Marketing Act of 1976. The FMPP administers grants that are targeted to help improve and expand domestic farmers markets, roadside stands, CSAs, agri-tourism activities, and other direct producer-to-consumer market opportunities. Approximately $5 million is allocated for FMPP for Fiscal Year 2010 and $10 million for Fiscal Years 2011 and 2012. The maximum amount awarded for any proposal cannot exceed $100,000.[11]

Food Desert

Food deserts are areas that lack access to affordable fruits, vegetables, whole grains, low-fat milk, and other foods that make up a healthy diet.[12] The USDA offers an interactive website that locates and highlights areas considered to be food deserts, as well as offering demographic information obtained from the 2010 Census about each food desert community.[13]

Food Insecurity

Food insecurity is the way that the USDA measures levels of access to food. Food insecure households are those that were not able to afford a nutritionally adequate diet at all times in the past 12 months.[14] For further information see Chapter One.

Food Miles

Food miles are a colloquial term used to describe the amount of distance food products must travel to the consumer.[15] During committee testimony, witnesses indicated that current food practices often require transporting food over 1,500 miles from farm to table. For further information see Appendix D.

Good Agricultural Practices (GAP)

GAP refers to general practices to reduce microbial food safety hazards in growing, harvesting, sorting, packing, and storage operations.[16]

Gene Flow

Gene flow is the transfer of genes from one population to another, discussed in the context of agriculture as a problem in monitoring the location of genetically modified organisms (GMOs). A field planted with genetically modified seed is susceptible to populate other fields through cross-pollination with the same or related species. *Horizontal gene transfer* is a type of gene flow that happens through the direct uptake of the transgenic DNA by cells of unrelated species without having planted genetically modified seed.

Genetically Modified Foods (GMFs)

GMFs are derived from GMOs. According to University of Missouri Agri-Economist Nicholas Kalaitzandonakes, GMFs are separated into first- and second generation-biotechnology products. First-generation crops are simpler to produce and have been used for improved agronomic crop properties, such as herbicide tolerance and resistance to particular pests. An example of first-generation crop would be Roundup Ready® soybeans introduced by Monsanto in 1996. Second-generation crops are more complex and involve engineering for quality traits, often for industrial and pharmaceutical uses. An example of second-generation crops

would be corn with high oil and lysine content for the feed and edible oils market.[17] Other GMFs include canola, rice, and cottonseed oil.

Genetically Modified Organisms

According to the World Health Organization, GMOs are organisms in which the DNA has been altered in a way that does not occur naturally. The technology is often called "modern biotechnology" or "gene technology", sometimes also "recombinant DNA technology" or "genetic engineering".[18] GMOs are organisms that have had specific changes through a process of genetic engineering of their DNA. In terms of agriculture, genetically modified seeds are subject to intellectual property rights. This is a contentious issue in the agricultural community due to gene flow, and has been the subject of legal action on the part of organizations that own the rights to that intellectual property. For further information, see Monsanto Canada Inc. v. Schmeiser, 2004.[19]

Good Manufacturing Practices

Good manufacturing practices are general practices to reduce microbial food safety hazards in sorting, packing, storage, and transportation operations.[20]

High Tunnel

High tunnels are unheated greenhouses that extend the growing season of producers, often used on small-scale farms in order to increase the profitability of the farm. They also are referred to as *hoop houses*.[21]

Hydroponics

Hydroponics is a method of soilless agriculture where plants are cultivated in nutrient-enriched water, sometimes with the aid of an inert medium such as sand or gravel.[22]

Land Banking

A land bank is a governmental entity that focuses on returning abandoned and foreclosed properties into productive use. A land bank acquires and maintains properties that have been neglected and discarded on the open market. In many

instances, a land bank becomes a tool to revitalize and repurpose properties, thus rebuilding neighborhoods and communities. It allows cities and counties to analyze properties and think long term about the best role for the property to play in the neighborhood and community.

Low tunnels built inside of a high tunnel at Happy Hollow Farm in Jamestown, Mo. Photo reprinted from University of Missouri Extension, "The Lowdown on high tunnels," February 27, 2012.

Low Tunnels

Low tunnels are miniature high tunnels that are constructed to nurture cold resistant crops like lettuce and spinach through the winter months for harvest in early spring. Planting crops using low tunnels begins in early October. Supported by a small hoop down the row of the planted crop, a polyester row cover is draped over the top of the structure. Midway through November an additional layer of plastic is placed over the top of the low tunnels for additional insulation.[23]

Master Gardener

A certified Master Gardener is an individual who has completed 30 hours of classroom training on horticulture practices, at least 20 hours of volunteer service annually in regionally approved programs, and at least six additional hours of continuing education within that calendar year. Originating in Washington State in 1972, master gardeners programs have spread nationwide with all 50 states participating. There are over 2,000 active master gardeners in the state of Missouri.[24]

Peri-Urban

Peri-urbans are areas immediately adjoining an urban area. The term was frequently discussed in committee hearings in the context of fringe areas of cities engaged in urban agriculture. During testimony, witnesses charged the committee not to overlook peri-urbans when crafting public policy to strengthen food systems.[25]

Rain Garden

Rain gardens function like miniature natural watersheds, slowing water flow by using elements similar to those in nature: plants, rocks, shallow swales and depressions that hold water temporarily rather than let it quickly escape. Rain gardens minimize flooding and loss of soil and improve water quality in lakes and rivers by reducing silt. The use of rain gardens also can save tax dollars by reducing the need for communities to build larger storm-water retention facilities. Rain gardens provide beauty, natural diversity and wildlife habitat in areas that otherwise would be a monoculture of lawns, pavement, concrete culverts and storm drains. For detailed rain garden information and plans, consult "Chapter Two: Rain Gardening and Storm-water Management" from *A Homeowner's Guide for Missouri.*[26]

Specialty Crop Block Grant (SCBGP)

Authorized by the USDA, the Specialty Crop Block Grant program disperses funds to state's departments of agriculture for the sake of enhancing the competitiveness of specialty crops. Specialty crops are fruits and vegetables, tree nuts, dried fruits, horticulture, and nursery crops (including floriculture) that are intensely cultivated and used by people for food, medical purposes, and/or aesthetic gratification.[27] The Missouri Department of Agriculture awarded $353,052 throughout the state in fiscal year 2012.[28]

Senior Farmers' Market Nutrition Program (SFMNP)

SFMNP are grants awarded to states in order to provide low-income senior citizens with coupons that can be exchanged for eligible foods at farmers' markets, roadside stands, and CSAs. The state of Missouri does not participate in this program.[29]

Supplemental Nutrition Assistance Program (SNAP)

Generally referred to as 'food stamps', SNAP is an effort to increase the overall level of nutrition, health and well being of citizens, especially the poor, elderly, disabled, and unemployed. By providing recipients with electronic cards

(electronic benefits transfer [EBT] in Missouri) citizens are able to purchase any food products prepared for human consumption excluding alcoholic beverages, tobacco, hot foods, or foods prepared for immediate consumption. This program is administered in Missouri under the Department of Social Services' Family Support Division. The USDA offers an interactive tool that helps locate retailers who welcome SNAP EBT customers.[30] According to the USDA (October 1, 2011 – September 30, 2012) incomes must be below the following thresholds to qualify for SNAP benefits as displayed in the table below.

Table 1

Household size	Gross monthly income (130 percent of poverty)	Net monthly income (100 percent of poverty)
1	$1,180	$ 908
2	1,594	1,226
3	2,008	1,545
4	2,422	1,863
5	2,836	2,181
6	3,249	2,500
7	3,663	2,818
8	4,077	3,136
Each additional member	+414	+319

Soil Carbon Sequestration

Soil carbon sequestration is the process of transferring atmospheric carbon dioxide from into soil through composting crop residues and other organic solids. This transfer or "sequestering" of carbon helps offset emissions from fossil fuel combustion and other carbon-emitting activities while enhancing soil quality and long-term agronomic productivity.[31] Soil carbon sequestration is discussed in this report in the context of Missouri's composting industry and its effects on climate change mitigation, see Chapter 7 for further information.

Soil Remediation

Soil remediation is the removal of contaminants and pollutants within the ground that could potentially cause harm to human health or the environment. During the hearings, soil remediation was discussed in the context of making brownfield tax

credits available for cleaning up blighted urban lands for repurposing them into community gardens or urban farms.

University Extensions

The Smith-Level Act of 1914 instructs every land-granted, state university to operate a rural outreach mission called cooperative extensions to bring the results of agricultural research directly to the farmers.[32]

Urban Agriculture

Growing food in and/or around cities. The movement to grow more food in and around cities is attractive for a multitude of reasons. This activity creates a hedge against rising fuel costs, reduces food miles, and the carbon footprint. Producing more food locally means less food has to be trucked in from other areas of the state or country, or even imported from other parts of the world. The act of growing food in cities is a living illustration and source of education showing where our food comes from, and how it gets to our tables. This endeavor also has a social component as community gardens and urban farms are useful tools in bringing together members of communities.

Urban Homesteading

Practice whereby a family seeks to produce as much of its own diet as possible while living in an urban setting.

Women-Infant-Children (WIC)

WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.[33] WIC was formally created by an amendment to section 17 of the Child Nutrition Act of 1966 on September 26, 1972 under the Nixon Administration.[34] See Chapter 5 for Missouri specific discussion.

Citations for the ***Definitions*** section can be found in the bibliography on page 150.

Chapter One: Food Hubs in Food Deserts

By Greater Kansas City Food Policy Coalition

Background

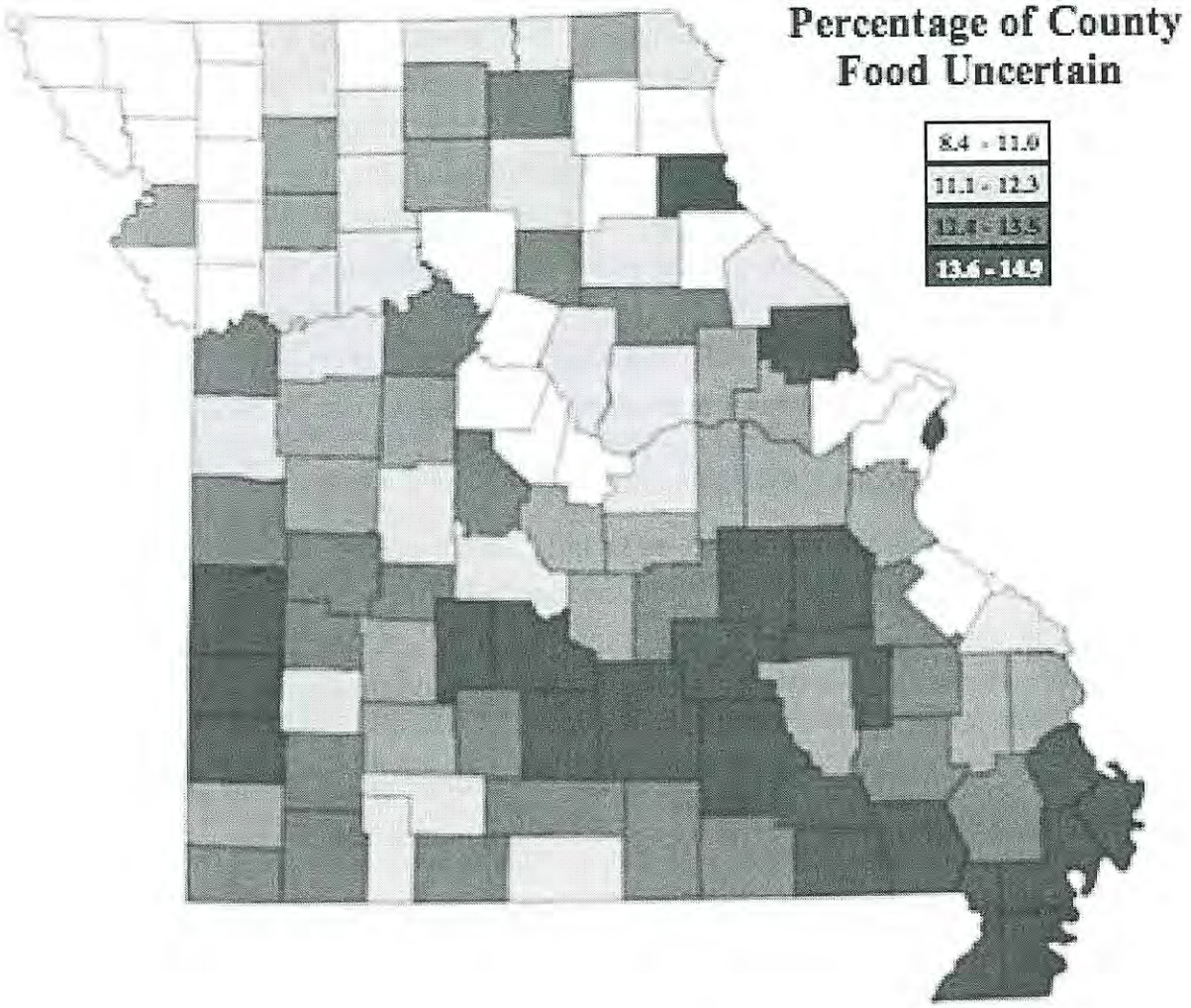
While everyone knows what hunger is, food insecurity is a more vague concept. Food insecurity, also referred to as food uncertainty, is the way that the USDA measures levels of access to food. Food insecure households are those that were not able to afford a nutritionally adequate diet at all times in the past 12 months.[35] One in seven Kansas City residents are food insecure. For individuals and families, food insecurity may mean reducing food portions, skipping meals altogether, or the uncertainty of not knowing where their next meal will come from. Missouri on the whole ranks 8th nationally for the amount of food insecure households.[36] Children in our region are at especially high risk for food insecurity as Missouri has the fifth highest rate of child food insecurity in the United States.[37]

Overall, families with children, especially single-parent households, are at the highest risk for food insecurity. Food insecurity is detrimental to our health, economy, and community. It leads to poor performance and increased absenteeism at school for children and at work for adults.[38] Often food insecure households only have access to low-nutrient, high-fat foods, thus they have a harder time managing chronic illnesses and are more likely to suffer from diet-related health problems such as diabetes and obesity.

The food environment plays a significant role in who has access to healthy, fresh, and local food. *Neighborhoods that lack grocery stores and fresh food markets are called food deserts because staple grocery items are not affordable or easily accessible.* Increasing urban agricultural activity is one effective strategy for improving access to affordable, healthy foods in underserved, low-income areas.

Missouri Food Insecurity Rates Per County

Figure 3[1]



In 2010, the national average rate of food insecure households was 14.5% and 5.6% for very low food secure households. Missouri ranked above average with 15.8% food insecure households and 6.6% very low food secure households.[39]

Understanding Food Deserts & Food Insecurity

The USDA defines a food desert as a census tract where 20% or more of residents are at or below the poverty line and at least 500 people and/or 33% of residents reside more than one mile from a supermarket or grocery store (the distance is ten miles in rural census tracts). Food deserts may be urban or rural and appear throughout Missouri. An interactive map of food deserts is available through the USDA.[40]

Based on the USDA's Food Desert Locator data, 7,601 residents in Boone County, 12,276 residents of Greene County, 48,344 residents of Jackson County, and 30,534 residents in St. Louis City were both low income and had poor access to a supermarket or grocery store in 2010.

People in urban food deserts without adequate transportation often find it difficult to purchase nutritional groceries. Many rely on purchasing food from nearby convenience stores or fast food restaurants. Others use public transportation, walk long distances, or rely on others for a ride to do their shopping.

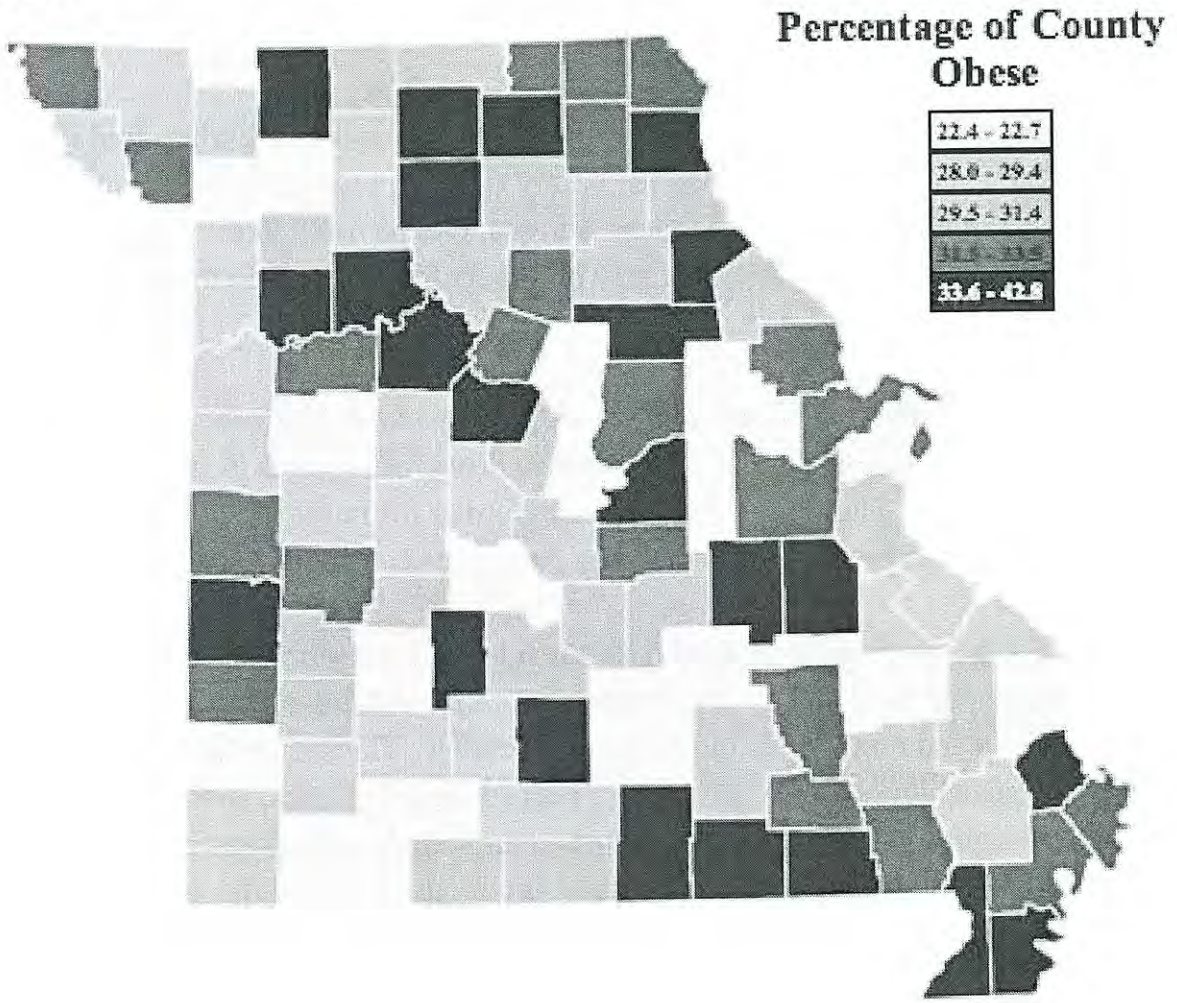
In rural communities, more small-town grocery stores close each year and families in these rural food deserts often have to drive many miles to find a full-service grocery store. This can be a significant burden for families with time pressures and limited incomes, especially as gas prices continue to rise.

Once at the grocery store, food desert residents make purchases based on limited budgets and their means of transportation; thus making processed foods, which are cheap and non-perishable, a common choice. This results in a diet that is often low in fresh, whole foods and high in refined carbohydrates, sodium, and trans-fats. Therefore, those living in both urban and rural food deserts are less likely to eat a balanced and healthy diet, resulting in an increased risk of obesity and other diet related diseases, such as cancer, diabetes, and heart disease.

In 2010, 30.5% of Missourians were obese according to the CDC. The CDC estimated the obesity epidemic cost $147 billion nationally in 2008, with employers bearing $73 billion worth of those costs according to a recent study out of George Washington University.[41] Missouri obesity rates per county in 2010 can be found in the figure below. Taken with Figure 4 above, both figures display the correlation between food insecurity rates and obesity rates in Missouri.

Missouri Obesity Rates Per County

Figure 4[42]



Given the relationship between food deserts, food insecurity and the staggering costs of diet-related diseases to governments and businesses, it is imperative that the Missouri policy makers take action to improve access to healthy, affordable food in food deserts.

Urban agriculture can play a critical role in expanding access to hyper-fresh, affordable food. Whether it's a home garden, community garden, urban farm, or farmers' market, urban agriculture can be a vital and rapid response to improve healthy food access in food deserts. Along with supporting a healthy diet, agriculture in urban food deserts can play an important communal role by fighting blight, increasing property values, reducing crime rates and creating economic development.

Many urban food deserts have a high density of vacant lots, often held in a land trust or land bank (see Chapter 7 and Chapter 4 respectively). There is a significant cost to local governments for mowing, trash removal, and tree maintenance on vacant lots: in 2012, Kansas City estimates that it will mow and/or clean 7,800 vacant or abandoned properties. Additionally, vacant lots provide an ideal space for illegal activities. Once vacant lots are transformed into urban farms or community gardens they no longer require maintenance by local government and are transformed into productive use adding to the overall value of the neighborhood. Further, the gardeners and farmers tending the lots take proprietary ownership of its upkeep. The increased surveillance provided by entrepreneurs and community gardeners has been cited as a reason that crime appears to decrease when such agricultural activity is present.[43] Given the reduction in blight, trash, and crime, studies have demonstrated that community gardening increases property values.[44]

Transforming vacant lots into urban farms in food deserts also creates a hyper-local source of fresh food, whether grown by residents for their own consumption in a community garden or by an urban farmer who wishes to sell directly from their farm. Urban agriculture also can provide desperately needed economic development in low-income communities. Allowing onsite sales and

agricultural entrepreneurship creates additional income for hobby gardeners and long-term jobs for urban farmers and any staff they may hire. By necessity, all urban farms are small, which keeps food dollars recirculating within the hyper-local community. According to a study by University of Wisconsin Prof. Larry Swain, the economic multiplier, or number of times a dollar recirculates within a community before exiting, is 2.6 for small farms.[45]

Keeping this economic multiplier in mind, consider the economic impact of increased farmers' market purchases for both the farmer and the local economy. The *Beans & Greens Program* in Kansas City equips farmers' markets with electronic benefit transfer (EBT) machines and other supplies, assists the markets in becoming qualified SFMNP (Kansas sites only) and SNAP retailers, and then offers SNAP/SFMNP recipients a dollar to dollar match for use with local farmers vending at the market. The program increased the amount of fresh, local foods in low-income communities and generated more than $190,000 in sales for local farmers in 2011. The economic multiplier means these sales are an economic boon for our local economy, as well as local farmers and food insecure residents. If additional farmers' markets are opened in food deserts, and programs such as *Beans & Greens* are introduced, the entire community stands to benefit (See Chapter Four for further information on Missouri farmers' markets).

In conclusion, food deserts and food insecurity are significant problems in Missouri that urban agriculture can help eliminate. These food access problems are linked to school and work under-performance and negative health consequences, which cost government bodies and private industry billions of dollars each year. As such, food deserts are not a problem the state can afford to ignore. Urban agriculture has the capacity to make a tremendous impact in increasing access to healthy, affordable food in food desert communities. Simultaneously, it has the potential to improve health, battle blight, deter crime, and act as an economic development engine for residents and producers within food deserts, as well as for farmers and retailers who live outside the food deserts but are integral parts of the local economy.

Legislative Recommendations

While some policies relating to urban agriculture are local, and others require private sector action, there are many opportunities for state policy makers to help improve access to healthy, affordable food in food deserts and support urban agriculture.

Recommendations for state policies relating to food deserts and urban agriculture include:

- Supporting the increased use of food assistance programs at farmers' markets by:
    - Funding the purchase of EBT machines by farmers' markets.
    - Providing funding for WIC benefits at farmers' markets and other non-full service grocers to increase affordability and access to healthy foods. This could be done as a pilot program in cooperation with community organizations such as the Black Health Care Coalition, *Beans & Greens*, and the Greater Kansas City Food Policy Coalition (See Chapter 10).
    - Opting into the Federal Senior Farmers' Market Nutrition Program.
    - Working with the Jackson County Land Trust, the City of Kansas City, and local community groups such as Greater Kansas City Local Initiatives Support Corporation (LISC) and the Greater Kansas City Food Policy Coalition to revise statutes governing the operation of the Jackson County Land Trust so that vacant properties can more easily be sold and distributed to individuals and organizations interested in developing community gardens (see Chapter 3 for further information on land banking), urban farms, and healthy food retail points.
    - Supporting the expansion of SNAP matching coupon programs such as the *Bean & Greens* initiative in Kansas City, which offers participants dollar-for-dollar matches toward the purchase of regionally grown fresh fruits and vegetables at farmers' markets or mobile market trucks.

- Encouraging municipalities to adopt ordinances that allow for onsite sales of fresh foods from home gardens, community gardens, urban farms, and CSA's, such as the ordinance changes adopted by Kansas City in June of 2010 through Ordinance #100299.[46]
- Establishing incentives to reduce the cost of putting water access or water catchment systems into community gardens, urban farms, and CSA's.
- Maintaining funding for public transportation programs, thereby protecting one of the few means citizens in urban food deserts have to access existing healthy food retail businesses.
- Adopting a resolution directing the Department of Transportation to use a "complete streets/livable streets" model when renovating old roads or building new roads. Including safe pedestrian paths and crossings, as well as bicycle lanes is critical for those traveling to food retail by foot or bicycle, and encourages physical activity.

- Attract new food stores and improve healthy food options in existing stores by:
  - Offering incentives to supermarkets and grocery stores to locate new stores in food deserts.
  - Encouraging local health departments to establish "Healthy Corner Store Initiatives": providing incentives and technical assistance to help existing small grocers or convenience stores in food deserts expand their fresh, local food options.
  - Allowing and assisting small grocers and convenience stores to qualify as WIC & SNAP vendors, resulting in an increased availability of fresh, healthy whole foods.

Citations for ***Chapter One: Food Hubs in Food Deserts*** can be found in the bibliography on page 152.

Chapter Two: Community Building with Community Gardens

By Bill McKelvey, President, Community Garden Coalition, and
Hannah Reinhart, Community Development Coordinator, Gateway Greening

*Community gardening offers many opportunities for community building because it is as much about **community** as it is **gardening**.*

Background

Community gardening brings together people from different ages, income, and ethnic groups. Amongst the gardeners, this diversity leads to increased communal understanding, awareness about different cultural traditions, and interactions between people who may not have otherwise formed relationships. Community gardens can be seen as melting pots that help promote tolerance and a genuine sense of community.

Community gardens also provide people with the opportunity to develop leadership skills. Most gardens are initiated and operated entirely by volunteers, allowing people the chance to take on various roles within the garden community. Gardeners who may have had minimal leadership experience can learn valuable skills through these opportunities that, when applied to other life settings, could lead to a career or other successful endeavors.

Community gardens also serve as a gathering and meeting place, which is especially important for neighborhoods that do not have parks or other public places to gather. While tending their plots, gardeners have the chance to interact with one another. Further, gardeners can plan and host garden workdays, potlucks, open houses, classes, and other types of events that bring gardeners and neighbors together. These interactions develop relationships amongst gardeners and neighbors who may not have met without a community garden in place.

Community gardens have been documented as catalysts for neighborhood revitalization. A garden is a place where people can focus their efforts, employ their labor, and transform their idea of a better neighborhood from vision to reality. Gardens can make a positive difference in a neighborhood and demonstrate the community's commitment to creating a clean, safe, and friendly environment. Gardens can become a point of pride for a neighborhood, leading to additional revitalization efforts.

The diversity, leadership skills, and community revitalization cultivated by a community garden result from the employment of good community development practices. The authors of the *Growing Communities Curriculum* outline the following set of suggestions to guide community garden leaders: [47]

- *"There are many ways to start and manage a community garden."* – Although this may be a given, it helps to remember that community gardens can serve many purposes and take many forms.

- *"In order for a garden to be sustainable as a true community resource, it must grow from local conditions and reflect the strengths, needs and desires of the local community."* – Assistance from people or organizations outside of the community can be helpful. However, those who will be using the garden should make most decisions about garden development and management.

- *"Diverse participation and leadership, at all phases of garden operation, enrich and strengthen a community garden."*—Useful skills and good suggestions are often overlooked because of how people communicate. People should be given a chance to make their own unique contributions to the garden.

Taken as a whole, these suggestions emphasize the importance of being inclusive, making room for diverse ideas, and utilizing local assets and grassroots development strategies when starting a community garden. Most successful

community gardens are initiated, established, and managed by the gardeners themselves.

Case Study: Gateway Greening

Gateway Greening (GGI), based in St. Louis, Missouri, is an example of an organization that puts community development principles into practice. Since its foundation in 1984, GGI has empowered community groups by providing them the resources and knowledge to develop gardens and landscaped areas on public land to improve their own and their community's quality of life. GGI gives community leaders the tools to help themselves and their communities fix environmental and social issues through community garden projects. Innovative leaders transform former gas stations or problematic storm runoff sites into native rain gardens by clearing debris and adding fresh soil, enhancing the overall functionality of an urban ecosystem. Community members develop neighborhood improvement strategies that are well suited for their unique challenges and aspirations, while GGI is the catalyst and coach that helps them reach their goals.

Today, GGI supports around 200 independent community and youth gardens by offering annual opportunities to gardeners for expanding their gardens. GGI offers free educational workshops and trainings, as well as free or reduced-cost seeds and seedlings. Their staff, volunteers and community gardeners intimately feel the impact these garden projects have on strengthening the social bonds and overall quality of life in St. Louis neighborhoods.

GGI commissioned the "Whitmire Community Garden Study" through the University of Missouri-St. Louis Public Policy Research Center from 2000 details the beneficial impacts of community gardens. The study found that community gardening creates dramatic change in 11 quality of life indicators. [48] The study provided results on economic stability and population retention in areas immediately around community gardens as far surpassing areas without gardens, including increasing property value, homeownership, and higher rates of investment.[49]

Another method of communicating the benefits of community gardens is through testimonials. In 2009, GGI published a commemorative book of stories in honor of their 25th anniversary. Community garden leaders were asked to share their stories and reflect on the impact that garden projects have had on both neighborhoods and their sense of personal fulfillment.

Selected Community Garden Testimonials

"A community flower garden is an oasis in the inner city, a beautiful asset and a center of activity that says, 'This is a desirable neighborhood.' In the early 1990s, the Fox Park neighborhood was infested with street drugs, drug houses, gang crime and prostitutes. Sirens and gunshots were the sounds of the night. It was also home to many law-abiding citizens who wished and hoped for change. A small group of new and old residents decided to make a difference. . . . The garden was like a dawn for the neighborhood, a new morning which everyone hoped would lead to a glorious new day for Fox Park. What else to name it but the Morning Glory Garden…Morning Glory Garden wasn't responsible for all the improvements in Fox Park. But it was the beautiful visual symbol and catalyst of what could be accomplished when neighbors work together."

- Jim Hogan, former leader of the now redeveloped Morning Glory Garden, founded in 1994

"My dream for the garden was to bring in hope of a beautiful neighborhood, a neighborhood that we don't have to be ashamed of. It has been a true inspiration to those around it and to those that pass by. . . . It's not only a place of beauty but a place of fellowship. Neighbors get to know neighbors. They gather and have a bite to eat. It's a place where we can get downright dirty, and no one cares how we look."

- Tamya Smith, Garden Leader of Our Neighborhood Garden, founded in 2000

"I was proud of the relationships the children grew that summer. They communed with nature and bonded with elders. Along with collective work and

responsibility, [they] were on their way to help establish a gardening community."

- Debra Morrowloving, community gardener at Monsanto YMCA Community Garden, founded in 2006

"Gardeners are an array of variety. We have older ones as well as younger ones. We can share our backgrounds, experiences and cultural difference with each other. . . . Gardening provides opportunity to relieve stress in this hectic world, along with much needed exercise, a variety of healthy foods, enhanced social skills and sharing of the mind and heart."

- Valerie Granberry, Garden Leader of Mayberry Community Garden, founded in 1999

"Yes, we are making [the neighborhood] a greener, healthier and 'prettier' place to live, but as the sign reads, it is a COMMUNITY garden. It would be my wish to continue to see our garden grow not just with beautiful flowers, tress, plants and vegetables but also to 'grow' a garden of community. Grow a sense of belonging to a place, a neighborhood, a town and friends. Grow a sense of, 'Howdy neighbor, how ya doin.' I feel this sense of community is so vital to the human condition. And the community gardening and greening efforts of all involved work to improve that human condition."

- Tim Bolt, Garden Leader of Holly Hills Community Garden, founded in 2007

These stories display that while individual gardens may vary in terms of size, location and membership, most gardeners share a common goal to improve the world beyond their doorsteps. They want to live in a community where their children can play safely and where neighbors know and look out for one another. Although community gardens are just one tool helpful in achieving this goal, they offer priceless benefits ranging from access to fresh, affordable food to improved neighborhood connectivity.

Citations for ***Chapter Two: Community Gardening*** can be found in the bibliography on page 152.

Chapter Three: Land Banking

By Ashley Wisner, Greater Kansas City Local Initiative Support Corporation

Issue

The disproportionate amount of mortgage foreclosures following the 2008 economic recession have affected urban, suburban, and rural communities across the United States, leaving many vacant and abandoned properties. These properties harm tax revenues, drain city resources and decrease the property value of surrounding homes. For example,

- In Flint, Michigan an analysis revealed property within 500 feet of a vacant and abandoned structure lost an average of 2.26% of its value.[50]

- A study commissioned by Philadelphia in 2010 revealed that vacant and abandoned properties reduced the value of the city's homes by an average of $8,000 each, incurred $20 million in annual maintenance costs, and deprived the city of $2 million a year in tax revenues.[51]

- A study of eight cities in Ohio found that 25,000 vacant and abandoned properties imposed approximately $15 million in direct annual costs to the cities and more than $49 million in cumulative lost property tax revenue.[52]

- In Austin, Texas, blocks with vacant buildings had 3.2 times as many drug calls to police, 1.8 times as many theft calls and twice the number of violent calls as blocks without vacant buildings.[53]

Background

A "best practice" solution used successfully in other parts of the country is the passage of state legislation enabling cities to create land banks. A land bank is a governmental entity that focuses on returning abandoned and foreclosed properties into productive use. A land bank acquires and maintains properties that have been neglected and discarded on the open market. In many instances, a land

bank becomes a tool to revitalize and repurpose properties, thus rebuilding neighborhoods and communities. It allows cities and counties to analyze properties and think long term about the best role for the property to play in the neighborhood and community.

The independent organization of a land bank allows a dedicated staff to run the organization without the limitations placed on government bodies. Also, the flexibility of an independent land bank allows for easier partnering and coordinating with a variety of public and private groups. Further, there is an incentive to return properties to the tax roles to keep the land bank solvent as continual property sales provide for the operating budget.

Local governments are continuously asked to do more with less, so asking them to spend their limited resources demolishing vacant structures is often a hard sell. Many land banks become self-sustained through tax recapture funding. This occurs by redirecting a portion of future property taxes collected from properties the land bank has returned to the tax rolls.[54]

However, long-term financial opportunities land banks can provide significantly outweigh costs incurred. Land banks allow for the return of vacant and abandoned properties to tax roles, which stabilize property values and result in a city and county revenue bump. Consequently, a positive cash flow should result from adjacent properties and there should be a reduction in police, fire, and code enforcement costs for the city.

A land bank provides neighborhood residents and urban farming advocates the ability to work alongside city officials to explore community property redevelopment opportunities and discuss the long-term sustainability of their communities. In his book, *Land Banks and Land Banking*, Frank S. Alexander states,

> Identifying vacant and abandoned properties by geographical location and physical characteristics quickly provides insights into

neighborhood concentrations and immediately suggests a range of potential solutions.[55]

For example, a vacant lot located near an elementary school might be an ideal location for a community garden to help educate the students. In Flint, Michigan, the land bank hired an urban agriculture coordinator to identify properties best suited for urban agriculture and work with residents and organizations interested in learning more about urban farming.

Case Study: Genesee County Land Bank

In its first year, the Genesee County Land Bank in Flint, Michigan generated over $100,000 in property tax revenues for Flint and Genesee County. The total positive impacts of the Genesee County Land Bank demolition program, as of the end of 2005, are estimated at more than $112 million. Given the roughly $3.5 million spent on demolitions during the 2002-2005 period, this suggests a net benefit of the demolition program in excess of $109.5 million. Estimates suggest that the demolition program positively affected the values of more than 26,000 residential properties in Flint.

Land Banking in the 2012 Missouri Legislative Session

The 2012 Legislative Session saw the introduction of land banking legislation from a collaborative group of Kanas City legislators. The bill, HB 1659 & 1116, was Co-Sponsored by Representative Noel Torpey (R-Independence) and Representative Mike Brown (D-Kansas City). Joining this group was members from the Kansas City Caucus, including Representatives Holsman, Neth, Rizzo, Berry, McCann Beatty, Talboy, McManus, Lauer, Cross and Swearingen.[56] The land banking bill was heard in the Committee on International Trade and Job Creation where it earned unanimous passage putting the legislation on the fast track through 2012 Legislative Session.

Legislative Testimony for HB 1659 & 1116

Proponents	Representatives Torpey, Brown, and Holsman; David Park, Department of Neighborhood and Community Services, City of Kansas City; Jackson County Executive's Office; Jackson County Legislature; Greater Kansas City Local Initiatives Support Corporation; and Greater Kansas City Chamber of Commerce
Opponents	There was no opposition testimony to HB 1659 & 1116.
Informational Purposes	Audrey Spalding

Activity History for HB 1659 & 1116

Date	Vote	Ayes	Noes
02/15/12	Committee on International Trade and Job Creation	13	0
03/08/12	Third Read and Passed	136	10
05/16/12	Third Read and Passed with Amendments	31	2
05/16/12	Truly Agreed To and Finally Passed	131	15

Public Officials Remarks on Land Banking

Governor Jay Nixon:
"House Bill 1659 opens the way to establish the Kansas City Land Bank, which will be able to rehab vacant homes and turn deserted buildings into a viable asset for economic development. This legislation gives the city the ability to replace deterioration with innovation, and build a brighter future for all its residents."[57]

Bill Sponsor Rep. Nole Torpey (R-Independence):
"This is a serious problem in Kansas City that needs to be addressed and the land bank agency gives us an effective means to do it. By facilitating the process of putting these properties in the hands of groups that will rehabilitate them, we can revitalize our neighborhoods and attract new businesses and jobs to the area."[58]

Bill Sponsor Rep. Mike Brown (D-Kansas City):
"I think the mayor and the council have the best intentions and will work to create an agency that empowers neighborhoods."[59]

Bill Co-Sponsor Rep. Jason Holsam (D-Kansas City):
"This major piece of legislation will provide a tool for Kansas City to reverse the trends of blighted properties. Ten years from now we will see a much different Kansas City, largely because this effort helped to promote new private investment in our vacant tracts of land."[1]

[1] See press release from the Office of Rep. Holsman in Appendix F for further information.
[2] For further information on national SFMNP allocation, see Appendix G: SFMNP Grant Levels by State FY 2006-

Summary of the Truly Agreed Version of the Bill[60]

SCS HCS HB 1659 & 1116 -- LAND BANK AGENCY IN KANSAS CITY

This bill allows the City of Kansas City to establish a land bank agency for the management, sale, transfer, and other disposition of tax delinquent lands and other lands in its possession in order to return it to effective use to provide housing, new industry, and jobs and to create new revenue for the city. The agency must be established by ordinance or resolution as provided by the city's charter and will only have authority over tax delinquent lands and other lands in its possession located within the city.

The agency is authorized to acquire real property or interests in property by purchase, gift, exchange, transfer, foreclosure, lease, grant assistance, or other devise. It is to exercise all powers that are conferred by Sections 141.210 - 141.810, RSMo, and Sections 141.980 - 141.1015 relating to the Land Tax Collection Law and will be deemed a public corporation acting in a governmental capacity. The agency is exempt from all state and local taxation. It cannot possess or exercise the power of eminent domain or the power to tax.

The beneficiaries of the agency will be the taxing authorities that held or owned tax bills against the respective parcels of real estate acquired by the agency at a sheriff's foreclosure sale or by deed from land trustees, and each taxing authority's respective interests in each parcel will be to the extent and in the proportion and according to the priorities determined by the court based on the principal amount of their respective tax bills bore to the total principal amount of all the tax bills described in the judgment.

The agency will be composed of five to seven commissioners appointed by specified officials; and each commissioner must furnish a surety bond, if the bond is not already covered by a governmental surety bond, in an amount of up to $25,000 to be paid out of city funds.

The agency is authorized to sue and issue deeds in its name and will have the power to operate as any other corporate body including hiring staff and entering into contracts. It can convey title to any real estate it has sold or conveyed by general or special warranty deed. A deed must include the selling price and whether the selling price represents a value equal to or greater than two-thirds of

the appraised value of the real estate. If the selling price is less than two-thirds of the appraised value, the commissioners must first procure the consent of at least a majority of the entire board.

The land bank is authorized to acquire property by gift, transfer, exchange, foreclosure, or purchase. The land bank is prohibited from owning real estate outside the boundaries of Kansas City but may accept a transfer of real estate from a political subdivision.

If a land bank bids at a tax foreclosure sale in an amount that equals the amount of the tax liens, plus interest and costs, the property may be sold to the land bank. If property inside Kansas City has been offered for sale at three different tax sales and has not sold, it is automatically transferred to the land bank. The bill limits the land bank agency's ability to make certain bids at a sheriff's foreclosure sale to bidding on property that is located within a low to moderate income area designated as a target area for revitalization by the municipality that created the land bank agency.

After the land bank transfers property, for the next three years, the taxes on the real estate go to the land bank agency to fund its operations. The bill specifies how money from the sale of land bank property must be distributed.

The land bank is subject to the Open Meetings and Records Law, commonly known as the Sunshine Law.

The agency cannot be authorized to sell more than five contiguous parcels to the same entity in the course of one year.

The agency must maintain a perpetual inventory of all acquired real estate and make it available on its website. All land owned by the agency can be used as it sees fit including consolidating the land or grouping or regrouping it for economy, utility, or convenience.

The annual budget of the agency must be prepared by October 1 and delivered to the ad valorem taxing authorities that appointed commissioners for its review and approval. The bill specifies the procedure if one of the taxing authorities does not approve the proposed budget. The bill requires an annual audit of the land bank agency by certified public accountants as of April 30 and allows performance audits by the State Auditor or the city auditor at any time.

If at any time there are not enough funds available to pay the salaries and other expenses of the agency, sufficient funds will be advanced and paid to the agency upon its requisition from the ad valorem taxing authorities in the county that are not appointing authorities of which 7% will be paid by the county commission and 93% from the other ad valorem taxing authorities. The amount cannot exceed 25% of the agency's annual budget unless agreed to and approved by the taxing authorities. These funds will be considered advances and subject to repayment from funds subsequently collected by the agency.

A land bank commissioner or salaried agency employee is prohibited from receiving any compensation, emolument, or other profit from the rental, management, acquisition, sale, demolition, repair, rehabilitation, use, operation, ownership, or other disposition of any lands held by the agency other than the salaries, expenses, and emoluments provided by law and is prohibited from having any relationship with, being employed by, or receiving compensation from any contractor or developer who purchases property from the agency. Anyone convicted of violating this provision will be guilty of a felony and, upon conviction, sentenced to between two and five years in the state penitentiary.

Citations for ***Chapter Three: Land Banking*** can be found in the bibliography on pages 152-3.

Chapter Four: Farmers' Markets in Missouri

By Missouri Department of Agriculture

Missouri Farmers' Markets are Growing For You & Near You

In 2011, the number of farmers' markets in Missouri increased to over 200 with more than 900 community gardens. Whether it is to provide a space for the community to gather, bring fresh foods to areas in need, or purely for commercial reasons, more and more Missourians are forming farmers' markets to meet their local food demands. While most of these locations are seasonal, over 30 of them have expanded to stay open during the winter as well.

Three different studies from Iowa State University, the New Economics Foundation, and the Project for Public Spaces have independently shown that farmers' markets provide positive economic activity and hyper-stimulate activity for their surrounding traditional businesses, including:

- An increase in traffic to local businesses and economic activity by as much as 60 percent on days the market is open;
- A creation of twice as many jobs per square foot as traditional retail space;
- An 80 percent increase in economic impact compared to traditional sales, that is returned directly to the local community;
- A space for incubation of new and high growth agriculture based businesses.

Combined, these effects create jobs, stimulate local economies, and promote local communities as a whole.

According to the US Census and USDA, Missouri farmers currently grow over 8 billion dollars worth of food destined for the dinner table. This is twice the 4 billion dollars Missourians spend on food. However, of the 4 billion dollars Missourians spend on food less than 12 percent makes it back to local farmers. This gap represents **3.5 billion dollars worth of resources and jobs** leaving the local and state economy to areas with centralized food processing, packaging, and

distribution centers. Farmers' markets are one of the most direct and impactful ways to use money that Missourians already spend to create jobs and grow local economies.

There is a high and consistently growing demand for fresh and local products by Missouri consumers. This has driven a significant increase in the number of farmers' markets across the state over the past ten years, averaging a 10 percent increase each year. In 1997 there were 53 markets; today there are over 200 farmers' markets in Missouri. In urban areas, farmers' markets have become destinations for individuals and families. The City Market in Kansas City has reported over 58,000 visitors in one day while Soulard Market in St. Louis often has 50,000 visitors on Saturdays. Markets in Springfield and Columbia typically have 5,000-6,000 shoppers per day and in smaller communities, markets can average 1,000 visitors per day.

Farmers' markets give consumers opportunities to directly connect to farmers and access locally grown, fresh produce. These opportunities also allow consumers to see where their food comes from, learn how it is produced, and understand the process of bringing food from the farm to their family's table. Markets also help to promote nutritional education, wholesome eating habits, and better food preparation in addition to boosting the community's economy.

The Missouri Department of Agriculture has placed an increased emphasis on sustainability, stewardship, and local foods. Missouri farmers' markets exemplify these traits by selling high quality, locally grown products directly to the consumer. In doing so, they remove out-of-state costs associated with food sold in Missouri, keeping more dollars in our farmer's pockets.

The more than 200 unique farmers' markets in Missouri represent thousands of producers, small businesses, and family farms. Researchers have estimated that there are roughly 300 vendors who sell at Kansas City and northwest Missouri farmers' markets, about 175 vendors in the St. Louis area, and over 350 vendors who operate in central Missouri. The majority of those vendors participate in

multiple markets weekly, providing fresh produce, meats, baked goods, and dairy products to urban communities.

In addition to the farmers' markets in urban areas, smaller markets, like many located in southwest Missouri, are characterized by outstanding offerings and long histories of success. Southwest Missouri is home to many award-winning farmers markets, including the Webb City farmers' market, which was recognized as the Missouri farmers' market of the year in 2003 and again in 2009. This premier, producer-only farmers' market is the model for many markets across the state and country. The Fair Grove farmers' market north of Springfield is another successful, small town market that has been recognized as Missouri farmers' market of the year in 2010.

While urban markets are more likely to offer expanded services for guests, from permanent restroom facilities to café and restaurant locations, farmers' markets can be a bright spot in the community regardless of its population. As the number of markets throughout Missouri increases, so will the number of young farmers and innovative approaches to producing fresh, wholesome food for all to enjoy. This trend is already being realized by the number of young adults turning backyard plots into fertile ground for a wide range of products ranging from basil and tomatoes to chickens and eggs.[61]

For more information on farmers' markets in Missouri, visit http://AgriMissouri.com or contact the Missouri Department of Agriculture at (573) 751-4211.

Citations for ***Chapter Four: Missouri Farmers' Markets*** can be found in the bibliography on page 153.

For additional remarks on farmers' markets from Clayton's Farmers' Market manager Debra Henderson, see Appendix H on page 136.

Chapter Five: W.I.C. in Missouri

By Department of Health and Senior Services

Background

On September 26, 1972 the United States Congress formally created the Women Infant Children Program (WIC) through an amendment to section 17 of the Child Nutrition Act of 1966.[6263] WIC provides Federal grants to States for supplemental foods, health care referrals, and nutrition education for low-income pregnant, breastfeeding, and non-breastfeeding postpartum women, and to infants and children up to age five who are found to be at nutritional risk.[64] The income requirements for WIC eligibility in Missouri are listed in Figure 5 below.

Table 2[65]

Family Size	Annual Income	Monthly Income	Weekly Income
1	20,665	1,723	398
2	27,991	2,333	539
3	35,317	2,944	680
4	42,643	3,554	821
5	49,969	4,165	961
6	57,295	4,775	1,102
7	64,621	5,386	1,243
8	71,947	5,996	1,384
9	79,273	6,607	1,525
10	86,599	7,217	1,666
11	93,925	7,828	1,807
12	101,251	8,438	1,948
13	108,577	9,049	2,089
14	115,903	9,659	2,229
15	123,229	10,270	2,370
16	130,555	10,880	2,511
Each additional	+ 7,326	+ 611	+ 141

Missouri requires that in order to be a WIC vendor, the vendor must be a full service grocery store or pharmacy and must stock, at a minimum, all of the following foods: canned, fresh and frozen fruits and vegetables, fresh and frozen meats and poultry (luncheon meats and deli meats do not qualify), dairy products, cereals, breadstuffs, infant foods, and infant formula. In addition, they must meet current business stability, minimum square footage, hours and sanitation requirements.

Missouri's selection criteria were developed to ensure that WIC authorized vendors could provide the "One-Stop" shopping experience so WIC participants can meet virtually all of their grocery needs at one location. The "One-Stop" shopping experience maximizes State and participant resources, achieving administrative efficiencies while offering consistent access to a variety of fresh fruits and vegetables.

Missouri operated a WIC farmers' market nutrition program (FMNP) in three counties: Oregon, Washington, and Jackson. The program was discontinued on December 31, 2009, primarily on the basis of low participation rate and a lack of general revenue funding. The program is funded by the USDA and requires a 30% nonfederal match on administrative funds. In Fiscal Years 2006-2011 participating states averaged a $446,145 allocation. Missouri has participated in FMNP past but since Fiscal Year 2010 has failed to appropriate the necessary matching funds to allow for the operation of this program in the state. Missouri is one of three states to make this public policy decision in recent history. [2]

Policy Concerns & SFMNP

Authorizing farmers' markets to accept cash-value vouchers, while seemingly a win-win strategy, raises the following issues for the WIC program and its participants:

[2] For further information on national SFMNP allocation, see Appendix G: SFMNP Grant Levels by State FY 2006-2011.

- The vast majority of farmers' markets are seasonal operations, which means WIC participants could only utilize their services for a portion of each fiscal year.

- Fluctuations of availability would require participants to make separate purchases at various vendors in order to acquire adequate fresh fruits and vegetables in addition to stopping at a full service grocery to acquire the remaining WIC approved foods as infant foods, infant formula, and dairy products are not generally available at farmers' markets.

- In some instances, farmers' markets do not operate in permanent locations nor do they meet the program's requirements for daily hours of operation, sanitation, and refrigeration as WIC authorized retail vendors.

- WIC participants have limited resources and transportation options, restricting their access to farmers' markets and impeding their ability to visit multiple vendors in order to acquire WIC approved foods.

- While operating the FMNP program, Missouri farmers' markets check redemption rates were significantly lower than the average 80% redemption rate for fresh fruits and vegetables through standard WIC checks. Iowa and Montana, states with a strong history of WIC farmers' markets, have authorized farmers' markets to accept WIC checks for fruits and vegetables. However, both report redemption rates of 1% or less.

- There is a high financial cost for required oversight of expanding vendor criteria to include farmers' markets. Conservative cost estimates of expanding vendor criteria to include farmers' markets are approximately $500,000 to $700,000 in fixed costs for staff and related expenses to perform oversight functions required by the USDA and would require six additional full time employees.

Alternatives to SFMNP Participation

- *Encourage farmers to make their fresh fruits and vegetables accessible through authorized WIC vendors.*

  The Missouri Grocers Association is leading the effort to minimize additional costs to the state while increasing WIC participant access to fresh food while maximizing participant's limited transportation resources by maintaining the "One-Stop" shopping experience.

- *Encourage farmers' markets to accept Supplemental Nutrition Assistance Program (SNAP).*

  Since its possible for an individual to simultaneously benefit from WIC and SNAP programs, this could increase WIC participants' access to fresh fruits and vegetables offered by farmers' markets. The SNAP proram guidelines are less restrictive than WIC, allowing the participant to acquire a greater variety of items available through the typical farmers' markets. For example, a SNAP recipient would be able to acquire any fresh fruit or vegetable, including potatoes, from a farmers market, whereas potatoes are not an approved item in the WIC program. Similarly, a SNAP recipient could purchase fresh baked bread at farmers' markets, where under WIC that same bread would not be approved. The flexibility offered under SNAP would allow the participant to purchase a wider variety of items readily available at farmers' markets and maximize limited transportation resources.

Citations for ***Chapter Five: Women, Infant, Children in Missouri*** can be found in the bibliography on pages 137-8.

Chapter Six: Good Agricultural Practices

By Rusty Lee, Lee's Farms

Background

Good Agricultural Practices (GAP) are pro-active approaches to prevent outbreaks of food-borne illnesses in local Missouri foods. Food-borne illnesses are costly to Missouri both in human life and economics due to crop loss. By recognizing the damaging effects food-borne illnesses would have on rural and urban communities, the need to implement a statewide prevention strategy becomes clear.

This strategy should begin at the point of production. Whether it is a home garden, community garden, or working farm, food safety begins where the seed meets the soil. GAP procedures have been developed by the FDA and are contained in the "Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables."[66] The USDA administers a voluntary program to follow the recommendations of the guide. Listed below are principals from the cited USDA document outlining recommendations for minimizing microbial food safety hazards from harvest to distribution.

- **Principle 1.** Prevention of microbial contamination of fresh produce is favored over reliance on corrective actions once contamination has occurred.
- **Principle 2.** To minimize microbial food safety hazards in fresh produce, growers, packers, or shippers should use good agricultural and management practices in those areas over which they have control.
- **Principle 3.** Fresh produce can become microbiologically contaminated at any point along the farm-to-table food chain. The major source of microbial contamination with fresh produce is associated with human or animal feces.
- **Principle 4.** Whenever water comes in contact with produce, its source and quality dictates the potential for contamination. Minimize the potential of microbial contamination from water used with fresh fruits and vegetables.
- **Principle 5.** Practices using animal manure or municipal biosolid wastes should be managed closely to minimize the potential for microbial contamination of fresh produce.
- **Principle 6.** Worker hygiene and sanitation practices during production, harvesting, sorting, packing, and transport play a critical role in minimizing the potential for microbial contamination of fresh produce.
- **Principle 7.** Follow all applicable local, state, and Federal laws and regulations, or corresponding or similar laws, regulations, or standards for operators outside the U.S., for agricultural practices.
- **Principle 8.** Accountability at all levels of the agricultural environment (farm, packing facility, distribution center, and transport operation) is important to a successful food safety program. There must be qualified

personnel and effective monitoring to ensure that all elements of the program function correctly and to help track produce back through the distribution channels to the producer.

Legislative Recommendations

One approach to increase adoption of GAP could be through state initiated incentives. The Missouri Department of Agriculture in collaboration with University of Missouri Extension could promote GAP participation statewide by promoting food safety to its producers, who then pro-actively implement recommendations, in turn creating a safer and more sustainable food supply in Missouri. Informed consumers become confidant of the safe, sustainable nature of Missouri foods, strengthening the local relationship between consumers and producers.

While on-farm audits implemented as part of the USDA program to verify adherence to GAP guidelines are ideal, they are also costly to employ, which creates a significant barrier of participation for many producers. An alternative would be a classroom experience to teach the components of GAP administered by either state or federal Departments of Agriculture. After completion of this course, certificates of participation would be awarded. Producers could then use this certificate as a marketing tool. The GAP class could be cost-neutral for the implementing body by charging a nominal registration fee.

Additional copies of the "Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables" are available from:

Food Safety Initiative Staff, HFS-32
U.S. Food and Drug Administration
Center for Food Safety and Applied Nutrition
200 C Street S.W.
Washington, DC 20204
(Tel) 202-260-8920

Citations for ***Chapter Six: Good Agricultural Practices*** can be found in the bibliography on page 153.

Chapter Seven: Composting

By Adam Saunders, Columbia Coalition for Urban Agriculture, and
Daryl Duwe, Composting and Organics Association of Missouri

Issue

Missouri is uniquely positioned to take advantage of the rapidly expanding interest in urban agriculture, thanks to a ready supply of vacant property in the state's many urban cores and the presence of a healthy, vibrant and growing composting industry. Compost is a necessary soil amendment in areas where the soil is ill suited for growing nutritious and bountiful food. The story of the Missouri compost industry has been a successful one. Through a valuable symbiotic relationship with composters, the unwritten story of the urban agriculture movement in Missouri will also be a success.

Background

Compost results from the controlled, biological decomposition of organic material that has been sanitized through the generation of heat and stabilized to the point that it is beneficial to plant growth. Compost is an organic resource that improves the chemical, physical, and biological characteristics of soils or growing media. It contains plant nutrients but is not typically characterized as a fertilizer.

Compost is produced through aerobic (requires oxygen) microorganism activity. These microbes require oxygen, moisture, and food in order to grow and multiply. The natural decomposition process is greatly accelerated when these factors are maintained at optimal levels. The microbes generate heat, water vapor, and carbon dioxide while transforming raw materials into a stable soil conditioner. Active composting is typically characterized by a high-temperature phase that sanitizes the product and allows a high rate of decomposition, followed by a lower-temperature phase that allows the product to stabilize while still decomposing at a lower rate. Compost can be produced from many raw organic materials called *feedstocks*, including leaves, manures or food scraps.

Plant growth benefits are substantial when composting because existing soils around homes and commercial sites are typically of poor quality due to the practice of soil stripping before construction. Compost improves the physical structure of the soil, promoting root development and heightening a plant's stress resistance. Compost also adds organic matter, beneficial microbes, and vital nutrients, all of which store and maintain soil fertility.

There are many benefits of compost as a soil amendment that have been proven through exhaustive research. Compost:

- Improves soil structure and porosity, creating a better plant root environment;
- Increases moisture infiltration and permeability, and reduces bulk density of heavy soils, improving moisture infiltration rates and reducing soil erosion and runoff;
- Improves the moisture holding capacity of light soils, reducing water loss and nutrient leaching, and improving moisture retention;
- Improves the cation exchange capacity of soils (cations absorb minerals and provide a nutrient reserve to plant roots);
- Supplies organic matter;
- Aids the proliferation of soil microbes;
- Supplies beneficial microorganisms to soils and growing media;
- Encourages vigorous root growth;
- Allows plants to more effectively utilize nutrients, while reducing nutrient loss by leaching;
- Enables soils to retain nutrients longer;
- Contains humus, assisting in soil aggregation and making nutrients more available for plant uptake, and
- Buffers soil acidity levels.

Legislative History & Statewide Initiatives

Missouri's robust composting industry originated from the passage of SB 530 in 1992, which redirected yard waste from taking up precious and disappearing landfill space to composting. Today, thousands of Missourians enjoy well paying composting jobs turning organic materials that used to be wasted in landfills into soil-enriching compost. More and more environmentally conscious grocery stores and other businesses are realizing it makes more sense to compost excess organic materials (food waste, floral waste, etc.) rather than dump them in a landfill.

Preventing organic residues from going to a landfill avoids methane emissions and preserves organic carbon and nutrients for beneficial use in land management and food production. Further, the continued use of compost improves physical, chemical, and biological soil properties and delivers a wide range of agronomic and environmental benefits. By supplying both stable and labile organic compounds, as well as plant nutrients and beneficial organisms, the agricultural and horticultural use of compost supports climate change mitigation on two fronts:

1.) The removal of atmospheric carbon through soil carbon sequestration, which is achieved directly through the storage of compost carbon and indirectly through enhanced plant growth, which increases soil carbon levels, and

2.) The reduction of greenhouse gas emissions achieved through reduced production and use of chemical fertilizer, pesticides, and irrigation systems.[67]

Case Study: Bradford Research Center at the University of Missouri

The University of Missouri is conducting groundbreaking research in this area. The MU Bradford Research Center (BRC), operated within the College of Food and Natural Resources, in Columbia, Missouri has a substantial,

interdisciplinary research, extension and education mission. Each year vegetables are grown at BRC for research and extension activities and then sold to MU's Campus Dining Services, who also have an interest in composting food wastes. Everyday campus dining serves approximately 8,500 meals generating approximately 4.5 oz of waste per meal. When calculated annually this is approximately 270 tons of food waste that winds up in the Columbia landfill.[68]

The BRC composting program offers a working model that can be replicated at similar institutions that generate waste food scraps, animal wastes, or other compostable feedstock. Built in Fall 2011, the composting system uses a low-tech, low-input approach to composting known as aerated static pile (ASP) to aerobically compost waste material. An aerated static pile approach employs ventilation systems to circulate air throughout the composting material. The approximately 175 tons of compost produced annually at BRC can be applied to vegetable and field crops to meet most, if not all, of the crops nutritional requirements. When considering the carbon footprint of a farm's operation, this is important because nitrogen fertilizer is the largest carbon source.[69]

Food waste from MU campus dining has a carbon-nitrogen ratio of approximately 20:1. In order to achieve a final optimum compost consistency ratio of 30:1, animal bedding and manure from the MU Horse Farm would need to be mixed in a 1:1 animal bedding to food waste ratio. Composting 270 tons of food waste with an additional 270 tons of animal wastes would be a significant first step in a long-term project to compost the campus wide waste stream of paper products, animal wastes, and yard wastes.[70]

MU does an excellent job recycling as much paper products as possible. However, MU still spends over $350,000 annually hauling unwanted materials to the landfill, including 1,500 tons of manure and bedding material produced annually by the College of Animal Sciences and Veterinary Medicine. When composted, these materials are extremely valuable and can be utilized by a growing market for local, sustainably grown produce.[71]

This cycle can be further strengthened by converting the 3,000 gallons of waste vegetable oil collected from campus dining services into biodiesel. This fuel could be used to power trucks required to transport compostable materials to BRC and deliver vegetables back to campus, as well as power tractors and equipment used for vegetable production. Biodiesel powered generators can be used to provide power to run fans used while composting. In essence, this system will have a zero, and possibly negative, carbon footprint, since carbon will be stored in the soil. Having an ASP composting system in place is the first and essential step to starting the composting cycle.[72]

MU's project is an important step in developing strategies for creating value-added products from materials intended for landfills. There is a growing interest in local food by the general public and in our school systems. This proposed system is the essence of community development and can serve as a model of how to compost food waste from any type of cafeteria (school, hospital, business, institutional, etc). Vegetables produced in similar systems could be used to provide schools with a healthy source of locally grown food and provide vegetable producers with a creative way to convert waste into assets to sell at local farmers' markets as well as to the general public. The benefits realized by diverting materials from landfills could be substantial.

Relevant Committee Testimony

The Composters and Organics Association of Missouri (COAM) represented by Daryl Duwe testified in support of HB 1660 (Missouri Urban Agriculture Act, see Appendix). Duwe delivered encouraging remarks for the potential of urban agriculture in Missouri indicating that in twenty years we all may look back and say that a thriving industry was created by the pending legislation, reflecting on the emergence of Missouri's composting industry, which was inadvertently created by a piece of legislation over twenty years ago regarding waste management practices (see Appendix A for further information).

Legislative Recommendation

To encourage the future growth of composting and urban agriculture, Missouri policymakers should find ways to divert organic materials away from unproductive landfills to productive composting arenas. One way Missouri could do this is through increasing recycling efforts. A good start would be to raise the percentage goal of municipal solid waste diverted from landfills from the current 40% to 75%. Such an effort would not only save precious landfill space, but also create jobs in the recycling and composting industries.

Citations for ***Chapter Seven: Composting*** can be found in the bibliography on page 153.

Chapter Eight: Aquaponics

Background

Aquaponics is a method of simultaneously raising fish and vegetables together in an integrated closed circuit, soilless system. It is a form of sustainable agriculture that displays substantial benefits and potential involvement in urban agriculture. Aquaponics draws upon the disciplines of both aquaculture and hydroponics, creating an approach for raising pesticide and herbicide free nutritious food all year round. Since 1997, the discussions within the aquaponics industry have been framed and publicized through the Aquaponics Journal.[73]

In a typical system produce is grown in raised growing beds stacked over a large fish tank. Water is pumped through the tanks, and then filtered through the growing beds, eventually flowing back down into the fish tank. The fish transform the food into waste, which becomes a necessary fertilizer for the plants being grown above. Fish raised successfully in aquaponic systems include: tilapia, largemouth bass, sunfish, crappie, koi, goldfish, and pacu. Plants that thrive in aquaponic systems include: leafy lettuces, park choi, spinach, argula, basil, mint, watercress, and chives. Other plants such as tomatoes, peppers, cucumbers, beans, peas, and squash have the ability to flourish in these closed systems but require additional nutritional demands. Figure 6 is a diagram courtesy of *Growing Power* and *The Denver Post* that further illustrates and explains a typical aquaponics operation.[74]

Case Study: Maplewood-Richmond Heights High School Aquaponics Facility

Maplewood-Richmond Heights, a suburban High School west of St. Louis City, will be the first high school in Missouri to install a functioning aquaponics system on their school grounds. The production of this facility is coordinated with Sub-Advisory Committee member and Chair of the St. Louis Food Policy Coalition Randy Wood, with the system coming from Myles Harston, founder of the AquaRanch in Flanagan, IL and practitioner of aquaponics since 1992.

Figure 5

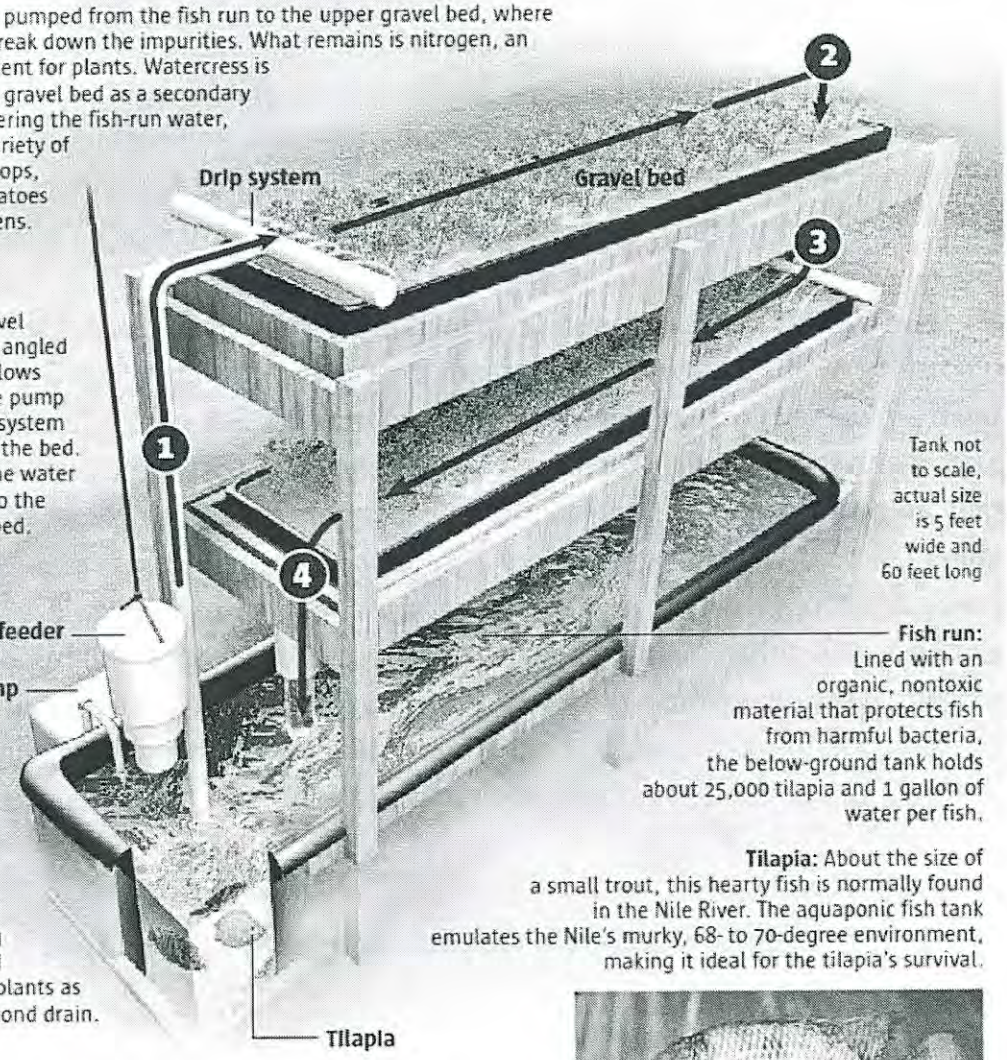
A better way to grow

Aquaponics uses a recirculating process to grow and harvest plants, and farm fish. Fish waste works with the beneficial bacteria in gravel and plants, creating a recyclable, concentrated compost.

1
Wastewater is pumped from the fish run to the upper gravel bed, where the bacteria break down the impurities. What remains is nitrogen, an essential nutrient for plants. Watercress is planted in the gravel bed as a secondary method of filtering the fish-run water, as well as a variety of harvestable crops, including tomatoes and salad greens.

2
The upper gravel bed is slightly angled so the water flows away from the pump to a drainage system at the back of the bed. Once there, the water drains down to the lower gravel bed.

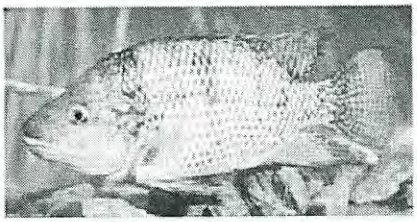
3
The lower gravel bed is angled back toward the pump, once again filtering the water and nitrating the plants as it enters a second drain.



Tank not to scale, actual size is 5 feet wide and 60 feet long

Fish run: Lined with an organic, nontoxic material that protects fish from harmful bacteria, the below-ground tank holds about 25,000 tilapia and 1 gallon of water per fish.

Tilapia: About the size of a small trout, this hearty fish is normally found in the Nile River. The aquaponic fish tank emulates the Nile's murky, 68- to 70-degree environment, making it ideal for the tilapia's survival.



Associated Press photo, Moapa Valley National Wildlife Refuge

4
The filtered water drains from the lower growing bed back into the fish run, and the cycle begins anew. Every nine months, the fish (tilapia and more recently yellow perch) are ready to be harvested.

Additional text by Colleen O'Connor, The Denver Post

Source: Paul Tamburello, founder Urban Organics, Growing Power Inc.

Jonathan Moreno, The Denver Post

Relevant Committee Testimony

Sweet Water Organics

The Joint Committee took testimony from Sweet Water Organics Co-Founder James Godsil and Executive Director of the Sweet Water Organics Foundation and Chicago State University Professor Emmanuel Pratt. Sweet Water Organics began in a retired crane factory in Milwaukee's south side Bay View neighborhood in 2008. The crane factory was repurposed with work from unemployed and underemployed tradesmen from the Milwaukee area. Godsil was able to put his 30 plus years of roofing experience as the President of the Community Roofing and Restoration Company to work constructing this urban fish and vegetable farm.

Utilizing aquaponics, Sweet Water is able to grow lettuce, basil, watercress, tomatoes, peppers, chard, and spinach while raising tilapia and perch in a controlled indoor environment all year long. Sweet Water has become a vibrant example of the potential within the urban agriculture movement. Sweet Water has forged relationships with local restaurants that gladly purchase their produce and fish. The Sweet Water facility is able to raise 20,000 tilapia and 35,000 perch in their aquaponics systems.

Godsil and Pratt hit on the points of re-engaging urban areas and the general restructuring of post-industrial cities. This vision applies not only to places like Detroit, Milwaukee, or Chicago but every urban and metropolitan area that has seen the manufacturing and industrial base of their cities relocate, leaving behind an unemployed workforce and assembly lines with nothing to assemble. Godsil and Pratt are working towards training the next evolution of urban farmers and entrepreneurs through the many educational outlets of their organization, with a focused mantra of "turning waste into community resource."

Sweet Water's success has gained national acclamation from the New York Times, Wall Street Journal, and IBM, which gives the Sweet Water mission momentum. Godsil remarked to committee members that he would like to see the experimentation and development of a major aquaponics facility in every major

city within the next five years, which should influence national discourse on urban agriculture to the presidential level.

AquaRanch

Joining the committee from Flanigan, Illinois was Myles Hartson. Since 1992, Mr. Harston has operated the AquaRanch and has been referred to colloquially as one of the fathers of aquaponics. Mr. Harston gave the committee the perspective of viewing aquaponics as a means to increase our food security, as well as mitigate the negative effects of depleting current fishery stocks around the world and the amount of pollution being placed into our waterways given current forms of raising aquaculture.

Mr. Harston indicated to the committee that roughly 80% of the fish consumed by Americans is imported, often traveling weeks on ships and trucks to the market. Fish are often treated with carbon dioxide as a way of preserving the exterior as to appear attractive to the consumer, when in reality the product may be deficient in many nutritional categories. Conversely, aquaponic facilities give the producer the ability to create nutritious fish undisturbed by hormones or treatments of any kind. The aquaponic system must be kept in a precise symbiotic relationship between plants and fish, as anything done to the fish affects the produce and vise versa.

Mr. Harston urged the committee not to engage in lawmaking that groups the production of fish and aquaculture with the kinds of standards and regulation as cattle and livestock, as these types of productions are wholly separate and deserve to be treated as such.

Mr. Harston's efforts are expanding to the St. Louis area with the installation of one of his systems into Maplewood-Richmond Heights High School, as well as with the construction of an aquaponics production facility in Pagedale, Missouri in conjunction with Sub-Advisory Committee member Randy Wood (see Appendix C for further information).

Citations for ***Chapter Eight: Aquaponics*** can be found in the bibliography on page 153.

Chapter Nine: Vertical Farming

Issue

In a world with continuous population growth, it is estimated by 2050 80% of the population will live within urban areas. With population growth comes growth in food consumption, necessitating an increased need for space to grow food in a healthy, affordable manner. However, less land is available for agriculture now then ever before as more and more land is being developed. Currently, over 80% of land that is capable of sustaining crops is in use, while 15% is unproductive due to poor management practices. Vertical farming can counteract the loss of available agricultural land, the growing need for food, and increased urbanization.[75]

Background

Vertical farming is the cultivation of crops within skyscrapers or other vertically inclined surfaces. Hermetically sealed environments can be made within these structures that allow for the growing and cultivation of food where the nutritional needs of these crops can still be met. By utilizing skyscrapers and other buildings within urban areas, rural land that was once used for agricultural purposes can be allowed to return to its natural state. Additionally, by growing produce within urban areas, the food produced and has minimal transport cost. Vertical farms use

Figure 6

Skyscraper farming

A futuristic concept converts skyscrapers into crop farms that could help reduce global warming, improve the urban environment, and help feed the world's growing population. How it would work:

SOLAR PANEL
Energy is supplied by a rotating solar panel that follows the sun; drives interior cooling/heating system.

GLASS PANELS
Clear coating of titanium oxide collects pollutants and makes rain slide down the glass where it is collected and used for watering.

ARCHITECTURE
Circular design allows maximum light into center.

ECONOMY
The plan combines farming with office and residential stories.

IRRIGATION
Filtered, sterilized wastewater from sewage system can be used for irrigation.

© 2008 MCT
SOURCE: Vertical Farm Project

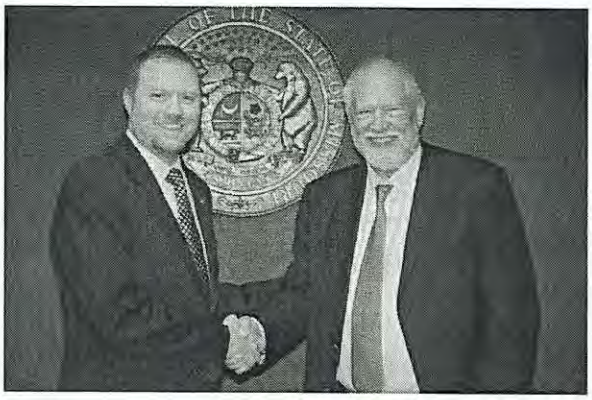
space more efficiently than their rural field counterparts without infringing upon the natural environment by building upwards, essentially having limitless space with which to grow food while still allowing humans to settle around them. Through the utilization of modern greenhouse technology (aeroponics, hydroponics, aquaponics, and composting) crops can be grown in sealed environments, controlling the temperature, atmosphere, and other conditions, protecting the crops from natural disasters and insects, and allowing for guaranteed cultivation.

Advantages of Vertical Farming[76]

- Year-round crop production: 1 indoor acre is equivalent to 4-6 outdoor acres or more, depending upon the crop (e.g., strawberries: 1 indoor acre = 30 outdoor acres).
- No weather-related crop failures due to droughts, floods, or pests.
- Vertical farming virtually eliminates agricultural runoff by recycling black water.
- Vertical farming returns farmland to nature, restoring ecosystem functions and services.
- Vertical farming converts black and gray water into potable water by collecting the water of evapotranspiration.
- Vertical farming dramatically reduces fossil fuel use (no tractors, plows, shipping).
- Vertical farming can convert abandoned urban properties into food production centers.
- Vertical farming can create sustainable local food systems in urban areas.
- Vertical farming can create new jobs.

Relevant Committee Testimony

The committee hearing opened with remarks from Dr. Dickson Despommier. Dr. Despommier is a professor at Columbia University whose background is in infectious disease ecology, specifically in Trichinella infection research. Dr. Despommier has pioneered the concept of vertical farming and authored the novel, "The Vertical Farm: Feeding Ourselves and the World in the 21st Century."



Joint Committee Chairman Representative Holsman (left) with Dr. Despommier following his testimony to the committee.

The thought behind the vertical farm is one that explores the issue of food production through the lens of land scarcity. As the population of our planet grows and urban centers continue to expand and develop former and potential agricultural lands, the question remains how to feed the world. The current state of affairs shows that agricultural lands take up a landmass the size of South America to feed 7 billion humans. Projections show that the Earth's population will grow by at least an additional two billion in the next forty years, which means that to accommodate the growing population there will need to be an additional 2.1 billion acres of farmland, roughly the size of Brazil. This realization is sobering and requires an examination of any and all potential alternatives.

Vertical farming advocates say that society needs to rethink how and where we grow our food. As population growth continues to crowd cities, it only makes sense that cities begin to facilitate their own food production. Facilities raising food indoors can meticulously monitor the progress of the crop and techniques such as drip irrigation, aeroponics, and hydroponics provide the methodology for making these developments a reality. Dr. Despommier made reference to the unpredictable and harsh climate patterns of 2012. Tsunamis ripped through Asia decimating crop production, droughts in Texas left farmland unproductive, and in

Missouri flooding left crops in the Bootheel swamped (the USDA has paid out $17.2 billion over the last three years in crop insurance payments).

The economics associated with this ambitious undertaking could be fairly robust. Repurposing buildings in urban centers for agricultural production will take manpower, engineering, and maintenance. The social aspect should not be overlooked either, as Dr. Despommier articulated that bringing food production operations into cities will bring multiple benefits to citizens such as pride, a healthy local source of food, and an economic boost that cannot be outsourced.

Ideas discussed by Dr. Despommier are not merely theoretical, but are actually happening in various cities around the world. The closest example to Missouri is in Chicago at a facility that has been coined 'The Plant,' a repurposed meat packing plant that is in the process of being converted into a carbon net-zero vertical farm. 'The Plant' will take a retired industrial building and transform it into a facility that employs 125 workers and provides spaces for business incubation and educational opportunities to the community, all the while producing fresh food in the heart of one of the most populated cities in the world.[77]

Dr. Despommier credited Missouri with taking steps towards moving urban agriculture forward. With top universities to partner with, tremendous organizations such as the Missouri Botanical Gardens, and a legislature that had the foresight to authorize the Joint Committee on Urban Agriculture, Missouri is in a unique position to make a significant contribution to an emerging industry (see Appendix C for further information).

Citations for ***Chapter Nine: Vertical Farming*** can be found in the bibliography on page 154.

Chapter Ten: Agriculture Land Trusts

By Adam Saunders, Columbia Center for Urban Agriculture

Issue

Every minute of every day, America has been losing more than an acre of agricultural land to development.[78] Farm and ranch land is desirable for development because it tends to be flat, well drained, and affordable.[79] In Missouri, the most recent data spanning 2002-2007 shows an average loss of 40 acres of farmland daily. The full table below provided by the National Resources Inventory, a land survey conducted every five years since 1982 by the USDA Natural Resources Conservation Service, displays total recent and cumulative agricultural and rural land development in Missouri. Though the rate of agricultural land development has dropped in recent years due to the economic recession, it is necessary to develop state mechanisms to mitigate agricultural land loss.[80]

Table 3[81]

Index Criteria (Acres)	1997-2002	2002-2007	1982-2007
Agricultural land converted to developed land	91,500	74,300	468,000
Agricultural land at beginning of reporting period	26,167,900	25,860,200	27,552,400
Prime agricultural land converted to developed land	41,300	32,500	183,900
Prime agricultural land at the beginning of reporting period	12,600,400	12,466,000	12,895,800
Rural land converted to developed land	172,200	160,000	807,600
Rural land at the beginning of the reporting period	39,262,600	29,069,400	39,776,900
Prime rural land converted to developed land	50,700	41,100	222,700
Prime rural land available at the beginning of the reporting period	14,193,400	14,125,100	14,351,200
Total surface area	44,613,900	44,613,900	44,613,900

Background

Agriculture land trusts are part of a larger movement to protect lands by encouraging well thought out land management practices. There are several types of land trust groups that focus on different land types and operations. Private and

public land trust groups exist at the local, state, and national levels. For instance, Missouri has several state organizations as well as regional- and metropolitan-based organizations. These types of organizations utilize land use easements as legal mechanisms to preserve land. Easements generally remove certain uses from land such as clear-cut timber harvests or construction and development. Easements stay with the respective property into perpetuity. Most often, landowners donate easements to land trusts to hold and in return, land trusts monitor the property, preventing certain activities specified in the easement. Landowners who donate easements retain ownership of the land but their tax obligations are typically reduced because the fair market value of the land drops due to a lack of further development opportunities. People also commonly donate the title of their property to land trusts, which then assumes complete responsibility of land management and tax obligations.

Easements are created with a wide range of objectives. Conservation easements are most common and are meant to preserve natural ecosystems and encourage wildlife activity. This is particularly true in areas of exceptional native biodiversity and rare ecosystems such as tall grass prairies, which house many migratory bird species.

Agricultural land trusts are more rare and differ slightly from conservation easements. Agricultural easements dictate that agriculture will be the primary use of the land by restricting non-agricultural development. Landowners often donate these easements to ensure that their family farms avoid development.

Some land trusts purchase easements or property with the help of public or private funding, which increases the pool of landowners interested in selling. Currently, Missouri does not have any taxes or standing allocations that generate revenue for purchasing easements or real property. Rather, private donations act as the primary funding mechanism for land trusts.

The purchase value of an easement is assumed to be the difference between the market rate (assume $10,000 per acre) and the agriculture rate (assume $1,500

per acre) of the land; thus, land trusts would purchase the easement at $8,500 per acre. Land trusts also help landowners find an entrepreneur wanting to farm their land and help facilitate purchasing the land at the agricultural rate. Through land trusts, the landowner is paid full market rate ($8,500 + $1,500) for their land and the entrepreneur gets to buy the land at agriculture rate ($1,500).

Land Trusts in the 2011 Missouri Legislative Session

HB 458, sponsored by Representative Tom Loehner (R-Koeltztown), was passed in 2011 to create the Missouri Farmland Trust.[3] An advisory board of five volunteer members appointed by Director of Agriculture operates the trust. The advisory board is "authorized to accept or acquire by purchase, lease, donation, or agreement any agricultural lands, easements, real and personal property, or rights in lands, easements, or real and personal property, including but not limited to buildings, structures, improvements, equipment, or facilities subject to preservation and improvement." However, there has been no appropriation made to the trust by the Missouri General Assembly nor had not been allocated to the trust nor had the advisory board been selected.

Selected Summary of the Truly Agreed Version of the Bill

CCS SS HB 458 -- AGRICULTURE

This bill changes the laws regarding sales tax exemptions for farm equipment, noxious weeds, listing of livestock brands, and grain dealers and establishes the Missouri Farmland Trust Act and the Private Landowner Protection Act.

MISSOURI FARMLAND TRUST ACT (Section 262.815)

The Missouri Farmland Trust Act is established to allow individuals and entities to donate or otherwise convey farmland to the Department of Agriculture to preserve it as farmland and to assist beginning farmers by allowing long-term low and variable cost leases on the land making it affordable for the next generation of farmers to produce food, fiber, and fuel.

[3] See Appendix E for HB 458 Bill Language

The Missouri Farmland Trust will be implemented to accomplish the following objectives:

(1) Protecting and preserving Missouri's farmland;

(2) Linking new generations of prospective farmers with present farmers; and

(3) Promoting best practices in environmental, livestock, and land stewardship.

The Missouri Farmland Trust Advisory Board is established within the department to make recommendations to the department director regarding the appropriate uses of farmland in the trust and the criteria for the selection of program participants and to review and make recommendations regarding applications to lease farmland in the trust.

The bill specifies the membership of the board and the terms of its members. The department is authorized to accept or acquire by purchase, lease, donation, or agreement any agricultural lands, easements, or real and personal property including, but not limited to, buildings, structures, improvements, equipment, or facilities subject to preservation and improvement which will be the property of the trust.

The Missouri Farmland Trust Fund is created consisting of gifts, donations, and appropriations by the General Assembly. Upon appropriation, moneys in the fund must be used for the administration of the trust and may be used to make payments to counties for the value of land in lieu of real and personal property taxes for privately owned land acquired and for the maintenance, operation, regulation, and improvement of the trust's assets to promote agriculture and the general welfare. Property acquired by the department must be used for agricultural purposes and must be farmed and maintained using the best environmental, conservation, and stewardship practices as specified by the department. No beginning farmer can lease farmland in the trust for more than 20 years. Any person or entity donating to or leasing land from the department must release the state, its employees, volunteers, agents, and any entity acting in concert or on behalf of the state from any and all claims, actions, or demands that he or she and his or her relatives and legal representatives have now or may have in the future for any injury, death, or property damage related to participation in these activities as

well as the negligence or any other acts connected to the activities and the condition of the property where the activities occurred.

Legislative Recommendations

There is great potential for land trusts and easements to be effectively used in Missouri to promote urban agriculture. The most notable possibility is agriculture lands adjacent to or within urban areas. These lands are under development pressure, thus inflating the market value of the land to a point where farmer entrepreneurs have difficulty succeeding due to excessive costs. Land trusts can be most effective if they work with landowners to secure easements on tillable lands and lower land prices for farmer entrepreneurs. Land trusts will need to make efforts to find entrepreneurs that have successful farming models and the capacity to effectively manage larger tracts of land. These agricultural lands are important to our cities, and if agricultural easements are secured on them, farmers will have a responsibility to provide local communities with food, fuel, and fiber. The Missouri General Assembly should:

- Allocate funding for The Missouri Farmland Trust and its appointed Advisory Board,
- Explore a small tax on real estate sales or other sources to generate a stream of revenue for the Missouri Farmland Trust,
- Create rules that enable counties to create taxes that contribute to the Missouri Farmland Trust,
    - The General Assembly could allocate these funds to only be used within the county that they were collected. Counties should have the ability to create a county level board to handle collection and management of funds.
- Focus efforts of the Advisory Board to secure land directly adjacent to or within urban areas, and
- Define "the best environmental, conservation, and stewardship practices as outlined by the department."

Citations for ***Chapter 10: Agricultural Land Trusts*** can be found in the bibliography on page 154.

Chapter Eleven: Higher Education's Involvement

By Dave Baker, University of Missouri Columbia; Mary Hendrickson, University of Missouri Columbia; Jacob Wagner, University of Missouri-Kansas City; V. K. Gasan-Thenhaus, University of Missouri-St. Louis; Kara Lubisher, University of Missouri-St. Louis; and Ansen Elliot, Missouri State University

Background

Today's challenges associated with the United States food systems are more complex and diffuse than at any time in our past. Providing fresh food to an increasingly urbanized world will remain one of humanity's greatest challenges in the decades to come as urban populations increase and existing arable lands are pushed to their limit. A comprehensive approach will be required for Missouri farms and farmers to successfully address the demand for local foods and diversity of taste in metropolitan marketplaces.

Higher education can and should play a leadership role in assuring that Missouri has the safest, most affordable, and most accessible food system in the world. The interdisciplinary resources that higher education possesses in the social and natural sciences, and the humanities, business, and technology fields must be an important part of understanding and addressing how to meet this challenge and develop sustainable food systems.

Strategic leadership by higher education is essential to address such issues of consumer literacy, future food production models, food policy, capacity building, preparation of future professionals, food safety, and infrastructure to cite a few. Since higher education institutions educate current and future parents, train the future researchers, educators, policy makers and food system innovators, and provide outreach to farmers, youth, small business and the general public, they must play a fundamental role in this issue. In this sense, the promotion of successful urban agriculture provides a real opportunity for intellectual exploration and development of benefits that universities can provide through research, teaching, and service.

If urban agriculture is going to be a priority in Missouri, then using the best science, instructional programming, and community outreach tools provided by the higher education community will be key to its success.

Instruction & Research

Urban agriculture offers both a challenge and opportunity for Missouri universities. In one sense, the production of food in and around cities runs against the grain of traditionally rural focused agricultural education. Such a challenge reflects a historical legacy that views agricultural education as a rural activity best dealt with through the university's extension activities in rural counties, or as a specialized research component of departments or colleges oriented toward the promotion of agri-business and the existing food industry. For a number of reasons, urban agriculture turns this system inside out and offers a great opportunity for re-organizing existing university activities around the needs of an emerging urban food system.

Higher education has a critical role to play in the successful development of urban agriculture as part of Missouri's food systems and several university researchers are already beginning to play that role.

Not only can institutions of higher education educate and train students to address the issues associated with creating and maintaining sustainable food systems, but they can also provide opportunities for students to gain real life experience with communities seeking to develop sustainable food systems. Higher education can contribute expertise for applied research to address the issues of urban food systems, which can provide data for communities to evaluate solutions and make informed choices for sustainable food systems. Universities also demonstrate food procurement, production, and land use practices to create sustainable food systems through educational endeavors and facility operations.

With the growing interest amongst students and urban consumers in locally-produced food, university faculty within their existing programs, departments, and research agendas have responded across Missouri to develop curriculum focused

on supporting urban agriculture.

Every aspect of the urban food system can engage and involve different areas of university knowledge and research. In this sense, understanding urban agriculture requires new collaborations between urban planners, land use lawyers, soil scientists, business development and marketing, as well as the traditional areas of agricultural extension and research. Here are some examples of existing courses offered and current research from associated faculty across Missouri that are beginning to address these issues:

- Community Food Systems (AFNR 3215)
    - Explores how to develop the resources of a community to build sustainable food systems from direct markets to working with institutional food services to grocers sourcing local foods to urban agriculture.
- Introduction to Sustained Agriculture (AFNR 2215)
    - Introduces students to urban agriculture and the potential of it for transforming food systems.
- Planning for Urban Agriculture (UMKC Urban Planning and Design UPD 499)
    - Provides a comprehensive overview of urban food systems and their development from the perspective of urban planning, urban design, and urban ecology.
- At UMKC, faculty in the Department of Architecture, Urban Planning and Design have worked with a variety of partners to understand the obstacles to urban food production. This has included research related to the use of brownfields for urban food production.

Extension & Outreach

In 2010, Old North Grocery Co-op in north St. Louis opened its doors, providing access to fresh and healthy foods for urban consumers and creating a new urban market for farmers and producers. Building on the successful farmers'

market, community gardens, and CSA operations in the neighborhood, the grocery co-op provides an additional opportunity to close the food gap in urban neighborhoods by linking producers and consumers (See Chapter Twelve for further information).

Across the state, interest in locally grown produce continues to develop in the greater Kansas City area. *Food from the Farm* program connects over 300 kindergarten students and their families to local farms to encourage eating local fruits and vegetables and to teach students the source of their food. Students participate in nutritional and agricultural lessons taught by kindergarten teachers, visits to nearby farms, and weekly fruit and vegetable tastings.

The common thread in these two examples is the involvement and leadership of university-based faculty in providing education and technical assistance to community efforts. University professionals and cooperative extension faculty are joining with community gardeners, neighborhood associations, schools, and nonprofits to maintain and expand urban food security. Through classes, consultations, applied research projects, and neighborhood partnerships, university faculty efforts support the production and distribution of locally grown agricultural products that increase food security and public health.

Under university outreach and extension units' leadership, the following efforts are contributing to urban agriculture and community food security:

- Promoting community gardens and healthy food and farmers' markets in city neighborhoods;
    - Community gardens and markets developed in cooperation with or supported by MU Extension and key partners such as Gateway Greening in St. Louis and Kansas City Community Gardens are teaching residents how to grow produce on underutilized land and promoting healthy eating, nutrition, and family financial management. *St. Louis Healthy Corner Store Project*, developed by MU Extension and the City of St. Louis Health Department, is expanding the

inventory of healthy foods in small neighborhood markets, promoting healthy eating education for families, and linking with local producers. *Yours Market* in St. Louis has teamed up with Lincoln University to develop a community garden project next to the store to grow fresh produce and vegetables.

- Assisting entrepreneurs in establishing new farms or growing food in city areas;
    - *Grow Your Farm* classes are designed for prospective farmers, beginners with some experience, and seasoned farmers who want to learn about alternative farming methods. MU Extension specialists and experienced, innovative farmers teach the sessions. *Growing Growers* helps organize apprenticeships on farms that sell produce in the Kansas City metropolitan area. Through a cooperative effort of Kansas State Research and Extension, University of Missouri Extension, Lincoln University Cooperative Extension, Kansas City Food Circle, Kansas Rural Center and Cultivate KC, farm apprentices work on local farms to get first-hand, practical experience, attend monthly workshops, and receive direct one-on-one training from their respective farmer (See Chapter Twelve for further information).
- Integrating locally grown foods into schools and enhancing school-based curriculum that introduction children to growing and eating fresh fruits and vegetables; and
    - MU Extension's *Eating from the Garden* project is designed to reduce the risk of obesity and Type-2 diabetes in youth and provides a direct link between the development of school gardens and nutrition education. Over 1,000 students in 30 Kansas City schools participated in Eating from the Garden programs in 2010. *Healthy Eating with Local Produce* (HELP) is a farm-to-school program dedicated to bringing fresh, local foods into schools and supporting agriculture within the region. Developed as a partnership between Saint Louis University and the Maplewood-Richmond Heights School District in St. Louis County, the program links local farmers to the Salus Food Processing Center at Saint Louis University, where college students,

dietitians, and chefs assist high school students in preparing meals that are served in the cafeteria. The processing center is also used to turn locally grown food into items that can be stored for year-round use in the school cafeteria.

- Linking urban consumers with rural producers.
    - Projects that connect rural producers with urban neighborhoods through farmers' markets, CSAs, grocery stores, and corner stores benefit both consumers through increased access to healthy foods and rural producers through expanded markets and sales. MU Extension's *To Market, To Market: A Guide to Locally Grown Food in the East Central Region* helps urban consumers locate sources of locally grown fruits, vegetables, and meats.

Additionally, higher education faculty in Missouri provide:

- Meaningful service and technical expertise to various non-profit organizations focused on urban agriculture including food policy councils, neighborhood organizations, and existing growers,
- Technical advice for farmers' markets, urban growers, community gardens and beginning farmers, and
- Marketing expertise and business development advice for urban growers.

Relevant Committee Testimony

The first hearing for Missouri's Joint Committee on Urban Agriculture in 2011 was held on the same day that the committee was re-authorized into existence. Prior to the hearing committee members met at UMKC's Katz Hall for a tour and presentation by Professor Jake Wagner of the Architecture, Urban Planning, and Design school at UMKC. Professor Wagner's presentation focused on an overview of UPD 499B "Planning for Urban Agriculture," a course taught within the Urban Planning and Design discipline. Students in this course develop an understanding of the global food system, learn about impacts of food production, distribution, and waste in urban ecosystems, explore ways to integrate food production into cities that would create efficient and sustainable communities,

experience new methods and technologies for urban food production, and learn about policies and regulatory approaches to support urban food systems. A large part of the course requires students to focus on urban agricultural patterns. In this exercise students identify, describe, and visualize patterns that are evident as part of existing and alternative food systems including urban agriculture. Teaching students these concepts in an academic setting puts the work at UMKC on the front lines of making the promise of urban agriculture a reality (see Appendix C for further information).

Future Research

The expansion of research, teaching, and service in the area of urban agriculture will require sustained support from the state's educational institutions. Lawmakers should consider the value of collaborative research in this area as part of the core university mission of economic development. Cities and metropolitan areas have much to benefit from university's attention to food systems and urban agriculture. Areas of future research could include:

- Food procurement and land use, specifically leading by example,
- Developing truly interdisciplinary approaches that involve all faculties in addressing food system issues from teaching to service to applied research;
- Developing opportunities for students to learn and practice all aspects of food production, consumption, politics, and culture in service-learning, undergraduate, and graduate curriculum; and
- Developing new systems for diverting the massive food waste in our metropolitan areas from landfills to compost and soil rebuilding efforts (See Chapter Seven for further information).

Chapter Twelve: Successful Example from Around the State

Organizations:

Columbia Center for Urban Agriculture (CCUA)
Growing out of a project from University of Missouri's student-led organization Sustain Mizzou, CCUA is a two-acre urban farm in the heart of downtown Columbia. CCUA reaches out to local schools and encourages educational school field trips led by urban farmers, teaching Missouri's urban youth where their food comes from. CCUA also operates a landscaping service to the citizens of Columbia, as well as helps set up community gardens and instructs citizens in economically disadvantaged areas how to care for those gardens. Adam Saunders is the President of the Columbia Center for Urban Agriculture and serves on the Joint Committee on Urban Agriculture's Advisory Sub-Committee.[82]

Cultivate Kansas City
Cultivate Kansas City is a non-profit organization with a base of operations on a two-acre organic vegetable farm located in Wyandotte County, Kansas City. Cultivate Kansas City is a farm, classroom, and laboratory for social and agricultural investigation. Cultivating forty different crops on a two-acre plot, Cultivate KC produces 25,000 pounds of organic vegetables annually. Through the "Get Growing KC Team", Cultivate KC works as an education outreach and development operation. Cultivate KC delivers a tremendous service to the Kansas City region by developing new urban farms, mitigating the damaging effects of urban blight, educating citizens on how to grow their own food, and bringing communities together. Katherine Kelly is the Executive Director of Cultivate Kansas City and serves on the Joint Committee on Urban Agriculture's Advisory Sub-Committee.[83]

Gateway Greening
Originally called 'Gateway to Gardening' when established as a non-profit in 1984, Gateway Greening seeks to increase the amount of affordable fresh food in the inner city and to mitigate undesirable effects of vacant lots. In 1997 'Gateway

to Gardening' partnered with the Missouri Botanical Garden and changed the name to Gateway Greening, Inc. Their original mission is largely unchanged but their scope has broadened. Through dynamic partnerships with non-profit organizations, faith-based institutions, education institutions, and neighborhood groups, Gateway Greening contributes to neighborhood vitality and stability through community food projects, education and wellness programs, and civic greening. Unwanted social behaviors are mediated through story time in the garden and volunteer partnerships with youth offenders. Mara Higdon is the Program Director for Gateway Greening, and serves as a member on the Joint Committee on Urban Agriculture's Advisory Sub-Committee.[84]

Greater Kansas City Food Policy Coalition

An advocacy coalition representing individuals, organizations, businesses and government representatives on all critical components of the local Kansas City food system. The Greater Kansas City Food Policy Coalition advocates policies that positively impact the nutritional, economic, social and environmental health of Greater Kansas City. The Greater Kansas City Food Policy Coalition supports urban agriculture activities on the basis of increased economic development to the community and enhanced individual and environmental health.[85]

Innovative Small Farmers' Outreach Program

The Lincoln University Cooperative Extension program, unveiled in 2009, assists small farmers and ranchers in Missouri, particularly those who are socially disadvantaged and underserved, to raise efficiency on their farms while preserving the high quality of their soil, water, and greater environment. The program is divided into two regions: west for Kansas City and east central for St. Louis. This program has successfully aided the development of urban agriculture in Missouri and has been a pipeline for new farmers getting into the industry.[86]

Menorah Legacy Foundation

The Menorah Legacy Foundation was established in 2003 from the original Menorah Medical Center Foundation but is no longer affiliated. The Menorah Legacy Foundation proactively improves health and wellness by fostering

transformational change in individual and communal behaviors. The Menorah Legacy Foundation facilitates *Kansas City Beans and Greens Mobile Market Program*, a mobile market campaign that makes fresh, locally grown fruits and vegetables available and affordable for low-income persons living in urban food deserts.[87] *Beans and Greens* also partners with farmers markets to provide a dollar-for-dollar match for food assistance currencies as a means to make fresh foods more available for the low-income citizens.[88]

Missouri Council for Activity and Nutrition (MoCAN)

MoCAN is a coalition of organizations, institutions, and like-minded state and local agencies operating as a branch of the University of Missouri Extension that seeks to advance the goals and objectives of their statewide plan *Preventing Obesity and Other Chronic Diseases*. MoCAN is comprised of seven work groups: Schools/Child Care, Food Systems, Worksites, Messages, Healthcare, Policy, and Built Environment. The Food Systems group, which examines ways to increase access to healthy and nutritious food selection, is of particular relevance for urban agriculture.[89]

Missouri Foundation for Health (MFH)

Established in 2000 from a court settlement involving the transfer of assets from Blue Cross Blue Shield of Missouri to a for-profit subsidiary Right CHOICE Managed Care Inc., MFH has become the state's largest non-governmental source of financing for community health activities. Serving 84 counties in Missouri and St. Louis city, MFH provides grant opportunities concerning issues facing uninsured, underinsured, and underserved citizens.[90]

PedNet

PedNet is a Columbia-based advocacy coalition of citizens that was launched in 2000 with support from the Columbia Disabilities Commission and the Columbia Bicycle and Pedestrian Commission. PedNet advocates for policies that result in improved infrastructure, allowing for walkable communities. PedNet also runs programs such as *'Walking School Bus'* and *'Bike, Walk, and Wheel Week'* that

seek to actively change travel behavior of citizens in areas where walking and biking are safe means of transportation.[91]

Springfield Urban Agriculture Coalition (SUAC)

Springfield Urban Agriculture Coalition promotes healthy lifestyles and environments through hands on education about production and consumption of locally produced, natural, healthy foods. Through the 10 school gardens in the D.I.R.T. project in the Springfield public school system, C.R.A.F.T. intern training project, as well as the Urban Roots Farm located in the heart of Springfield, SUAC is a vibrant example of the benefits that urban agriculture can provide to a community.[92]

St. Patrick Center

The St. Patrick Center is a faith-based organization anchored in St. Louis and the largest provider of homeless services in Missouri. Through more than twenty housing, employment, and mental health programs the St. Patrick Center assists more than 9,000 persons annually. Its partnerships with programs such as Gateway Greening and collaboration on projects such as *Farm Works* makes its contribution to the urban agriculture movement immense and its overall contribution to Missouri immeasurable.[93]

Operations:

City Seeds Urban Farm

A St. Louis urban farm spearheaded by Gateway Greening, as well as through an alliance with the St. Patrick Center, St. Louis Master Gardeners, Operation Food Search, the Missouri Department of Transportation, and Horstmann Brothers Landscaping. Located between Market and Pine Streets at 22nd Street in St. Louis, food grown in the 48 raised vegetable beds and fruit orchard is donated to food pantries, such as the *Food Outreach,* and sold at the Tower Grove Farmers Market. Programs at City Seeds follow two tracts. Participants in 'Therapeutic Horticulture,' overcoming homelessness, mental illness, chronic addiction, and/or prison release, take part in a 15-week program where they learn to grow food and work collectively with other gardeners. Funded through the St. Patrick Center and

the U.S. Department of Labor participants in the 'Veterans GO! Green' program participate in 10 weeks of intensive on-the-job training in green horticulture. Since August 2009, 43 of the 58 Go! Green graduates have found work in related industries.[94]

Collaborative Regional Alliance for Farmer Training (C.R.A.F.T.)

C.R.A.F.T. is a cooperative effort of local organic and biodynamic farms organized to enhance educational opportunities for farm apprentices. Founded in 2010, C.R.A.F.T. operates under the umbrella of the Springfield Coalition for Urban Agriculture. Through intensive internships as well as on-the-farm training and business planning hosted by member farms, C.R.A.F.T. seeks to train the next generation of sustainable farmers.[95]

EarthDance

Operating in conjunction with "The Open Space Council", EarthDance is a non-profit 501c3 organic farming training organization. Founded in 2008, EarthDance has trained 72 organic farmers using the 14-acre historic Mueller Farm in Ferguson, Missouri as a classroom.[96]

Farm Works

Led by Loft Works, an urban real estate development company, Farm Works is a proposal that would repurpose the former St. Louis Stamping Company into an innovative urban farm, coupled with housing, business incubation, and educational components. Utilizing ideas modeled in other cities, Farm Works will produce food for commercial sale, provide housing and job training opportunities for organizations such as the St. Patrick Center, as well as offer low cost warehouse space for developing 'green' businesses in the St. Louis area that encourage sustainable living practices. Gateway Greening will provide most urban agriculture training for St. Patrick Center clients. The space for business incubation will focus on processing and distribution of locally grown foods. The educational component will allow for on-site classes and tours for area schools and the general public through St. Louis University, Washington University, the Missouri Botanical Garden, and others.[97]

Old North Grocery Co-Op

Operating as a for-profit grocery store under the not-for-profit organization Old North St. Louis Restoration Group, the Old North Grocery Co-Op is a food hub that sells as much produce from local producers as possible. Opening its door in 2010 on the corner of 13th Street and St. Louis Avenue, in part due to funding from the Missouri Foundation for Health and the Greater St. Louis Regional Empowerment Zone, the co-op seeks to bring healthy, affordable, and fresh foods to the citizens of Old North St. Louis. Old North Grocery Co-op also operates as an education outlet, offering cooking, food preservation, and nutrition classes to the public, as well as offers space for community events.[98]

The Urban Farming Guys

The Urban Farming Guys, a not-for-profit organization based in Kansas City, refer to their efforts as an 'urban experiment' to bring the benefits of growing fresh, wholesome produce and living sustainably to a high-crime neighborhood within the city's urban area. This group of families is working to bring innovative and applicable, yet simple, techniques to their neighborhood with the hopes of developing a model that may be replicated throughout the U.S.

Last year, UFG started a community garden in the neighborhood with the highest crime rate in Kansas City with 15 garden plots, by summer's end it had expanded to over 60 plots for 50 different families and an additional one-half acre plot for large scale production that goes to local food pantries and neighbors in need. They also have an extensive backyard program throughout the neighborhood, assisting neighbors who cannot make it to the garden. Produce is sold off the community garden site via a farm stand to neighbors and at discounted rates to those who volunteer their time. The group also has purchased an abandoned school and is in the process of developing it into a community center, food hub and production facility for neighbors to create value-added products and jobs. Since their efforts began, KCPD has reported an over 50 percent reduction in crime and the group has secured over 30 abandoned or blighted properties to be converted into community and urban farming space.

The founders' approach to educate consumers on not only where their food comes from, but also the importance of understanding the process and inputs – from compost to pest control to harvest – required for fresh produce through hands-on interaction has gained attention, both in the neighborhood and beyond. The group's projects include a partnership with the local Rock Solid Urban Impact group to develop the Lykins Neighborhood Farm. Through the farm, which spans 9 vacant lots and includes both a community garden and plans for hoop houses and chickens, the group is providing fresh produce to the neighborhood at affordable prices.[99]

Urban Roots Farm & D.I.R.T

The Springfield Urban Agriculture Coalition's mission statement is to promote healthy lifestyles and environments through hands on education about production and consumption of locally produced, natural and healthy foods. This mission has given rise to several successful projects, including the *Dig In R-Twelve* (DIRT) project, which installs gardens and educational programming at ten Springfield schools and the Urban Roots farm.

Through Urban Roots, Melissa and Adam Millsap of Springfield, founders of SUAC, are working to provide fresh, locally grown food to people of all income levels within the community. They are also working to teach children and adults in the community necessary skills to grow food within their own backyards and communities. The Millsap's have based their Urban Roots Farm and outreach efforts on three pillars: Environmental Impact, Education, and Building Community. Through Urban Roots, they advocate for organic urban farming, reclaiming unused and blighted property in urban areas to beautify the neighborhood and provide fresh, wholesome produce for the community.

Yellowtree Farm

Started in 2008, Yellowtree Farm is a one-tenth of an acre urban farm in the St. Louis area owned and cultivated by Justin and Danielle Leszcz. The Leszcz's engage in urban homesteading, selling extra produce to area restaurants where they

have experienced financial success. The out-in-the-open approach at Yellowtree is beginning to open the minds of area residents to the real possibilities of urban food production.[100]

Yours, Inc.

Created in 2009 through the work of St. Louis Alderwoman Dionne Flowers, the Aldrich Foundation, and other St. Louis supporters, Yours, Inc. is a grocery store operating in a food desert at 8005 North Broadway, St. Louis. 35 percent of the produce Yours, Inc sells is produced on the grounds. There is additional land on the premises that could be developed into useful green space.[101]

Citations for ***Chapter Twelve: Successful Examples from the State*** can be found in the bibliography on pages 154-5.

Chapter Thirteen: Legislative History of HB 1660

The testimony delivered to the committee along with research from other interested parties resulted in Representative Holsman filing House Bill 1660, allowing for the establishment of urban agriculture zones.

Legislative Course of HB 1660[102]

Date	Action
July 11, 2011	Re-Authorization of Joint Committee on Urban Agriculture under SB 356
July 11, 2011	Joint Committee on Urban Agriculture Holds Public Hearing, University of Missouri-Kansas City
August 23, 2011	Joint Committee on Urban Agriculture Holds Public Hearing, Missouri State University
September 27, 2011	Joint Committee on Urban Agriculture Holds Public Hearing, University of Missouri Columbia
October 4, 2011	Joint Committee on Urban Agriculture Holds Public Hearing, Maplewood Richmond Heights High School
January 24, 2012	Joint Committee on Urban Agriculture Holds Public Hearing, Jefferson City
February 6, 2012	HB 1660 Introduced and Read First Time (H)
February 7, 2012	Read Second Time (H)
February 8, 2012	Referred: Agriculture Policy (H)
February 28, 2012	Public Hearing Completed (H)
April 5, 2012	Executive Session Completed (H)
April 5, 2012	House Committee Substitute Voted Do Pass (H) 11-0*
April 25, 2012	Amended onto HB 1254
April 26, 2012	HB 1254 Referred: Fiscal Review (H)
April 26, 2012	Executive Session Completed (H)
April 26, 2012	Voted Do Pass (H)
April 26, 2012	Third Read & Pass (H)—Ayes: 124 NOES: 017
April 26, 2012	Reported to the Senate & First Read (S)
May 1, 2012	Second Read & Referred: Agriculture, Food Production, & Outdoor Resources (S)
May 2, 2012	Public Hearing Held (S)
May 3, 2012**	Executive Session Held (S)—Senate Committee Substitute Voted Do Pass
*Although HB 1660 passed out of Agriculture Policy Committee legislation was never reported to the Rules Committee. ** HB 1254 was never taken up for action on the Senate floor, failing to pass through the General Assembly.	

Breakdown of HB 1660

Urban Agricultural Zones

- Creates distinctions for Urban Agriculture Zones (UAZ) either Grower, Vendor, or Processor.
- Distinction and approval of an Urban Agriculture Zone will be at the discretion of municipalities. Municipalities of 5,000 residents will be eligible, ensuring local control over UAZs.
- Provides tax abatement for blighted properties that qualify as UAZs (Chapter 353 Mo. Revised Statutes), as 10 years pre-assessed value, and 15 years at 50% of the assessed value.
- Provides a 50% discount to UAZs for hooking up to municipal water sources.
- UAZs will be eligible for wholesale water costs.
- Sales taxes in vendor UAZs will be placed into a fund overseen by the treasurer's office to be allocated to school districts as seed money for elementary and secondary school gardens.

Benefits of House Bill 1660

- *Economic—*
  - Reduces the carbon footprint involved in food transportation and provides a hedge against rising fuel costs.
  - Reduces imports keeping Missouri money in Missouri.
- *Educational—*
  - Growing food in cities is a living illustration and source of education showing where our food comes from and how it gets to our tables.
- *Social—*
  - Community gardens and urban farms are a useful tool in bringing together members of communities.
  - Community gardens help alleviate of urban blight and mitigate criminal elements associated with abandoned and vacant lots.

Relevant Press Releases

From the Office of Representative Jason Holsman
Jefferson City, April 5, 2012
The House Agriculture Policy Committee voted 11-0 to advance legislation sponsored by Rep. Holsman that would allow local municipalities to create Urban Agriculture Zones within their communities.

Urban Agriculture Zones are intended to spur the growth of agricultural production in blighted urban areas. House Bill 1660, defines a UAZ as an area that grows produce or other agricultural products, raises or processes livestock or poultry or sells food that is at least 75 percent locally grown or raised. Once a UAZ is granted by a municipality, the zone is eligible for certain incentives that would allow for systematic repurposing of blighted areas in our state's urban core.

HB 1660 is the product of five working sessions throughout the state by the Joint Committee on Urban Agriculture, an informational committee chaired by Holsman to study the emerging industry of urban agriculture.

"The Joint Committee on Urban Agriculture has worked diligently since last summer gathering information and putting together a package that will move urban agriculture forward in our state," Holsman said. "HB 1660 is a great start, and will make a huge impact in the urban core throughout Missouri. I want to thank all of the members of the Joint Committee on Urban Agriculture for their effort throughout this past year, and to the members of the Agriculture Policy Committee for voting the bill out of committee."

HB 1660 is now waiting to be referred to the Rules Committee before moving to the full House of Representatives for debate.

###

From the Office of Representative Jason Holsman
April 25, 2012

On the floor of the Missouri House, Rep. Holsman was successful in amending the agriculture omnibus bill (HB1254) to include the Missouri Urban Agriculture Act. HB 1254 will now head to Senate for approval.

Upon approval of local municipalities HB 1660 allows for the establishment of Urban Agriculture Zones. This legislation is the result of information and research presented to the Joint Committee on Urban Agriculture through hearings held all across the state. The committee took testimony and advice from 47 different organizations, community associations, and private citizens to best determine how the state of Missouri can grow this emerging industry. Incentives attached to the creation of Urban Agriculture Zones will foster entrepreneurship and job creation, while providing outlets to 86trengthen local food systems.

HB 1660 was passed out of the Agriculture Policy committee on April 5th, by a vote of 11-0.

###

Presentation to Agriculture Policy Committee

House Bill 1660

Presented by Representative Holsman
Tuesday February 28, 2012

I. Definitions of Urban Agriculture
   - Hydroponics
   - Aquaponics
   - Vertical Farming
   - High Tunnels / Low Tunnels

II. Benefits of strengthening local food production

III. Breakdown of House Bill 1660
   - Vacant properties in Missouri
   - Food Insecurity Issues facing Missourians

IV. Successful Examples of Urban Agriculture in the State

V. Letter of Support circulated to statewide activists

Cc: Agriculture Policy Committee

Chairman Loehner
Vice-Chairman Reiboldt
Representative Aull
Representative Dugger
Representative Entlicher
Representative Fitzwater
Representative Johnson
Analyst Sarah Garoutte
Representative Klippenstein
Representative Nance
Representative Quinn
Representative Schieffer
Representative Shively
Representative Swinger
Representative Wright

Issue

By the year 2050, nearly 80% of the earth's population will reside in urban centers. Applying the most conservative estimates to current demographic trends, the human population will increase by about 3 billion people during the interim. An estimated 10^9 hectares of new land (about 20% more land than is represented by the country of Brazil) will be needed to grow enough food to feed them, if traditional farming practices continue as they are practiced today. At present, throughout the world, over 80% of the land that is suitable for raising crops is in use (sources: FAO and NASA). What can be done to avoid this impending disaster?

Urban Agriculture Definition

Simply stated, urban agriculture is growing food in and around cities. The movement to grow more food in and around cities is attractive for a multitude of reasons:

- *Hedge against rising fuel costs.*
- *Reduces food miles*--Carbon footprint involved in food transportation
- *Less Imports*--Producing more food locally means less food has to be trucked in from other areas of the state or country, or even imported from other parts of the world.
- *Education*--Growing food in cities is a living illustration and source of education showing where our food comes from, and how it gets to our tables.
- *Social*--Community gardens and urban farms are a useful tool in bringing together members of communities, as well as help
    - Alleviate urban blight, and
    - Mitigate criminal elements associated with abandoned and vacant lots.

Context of House Bill 1660

"Urban agricultural zone" or "UAZ", a zone that contains the following activities to qualify for the benefits provided under this section:

(a) Any organization or person who grows produce or other agricultural products;
(b) Any organization or person that raises livestock or poultry;
(c) Any organization or person who processes livestock or poultry;
(d) Any organization that sells at a minimum seventy-five percent locally grown or raised (in the UAZ county or adjoining county) food;

Methodology

Hydroponics

Hydroponics is the production of crops in a nutrient rich soilless solution.

Aquaponics

Aquaponics is a method of simultaneously raising fish and vegetables together in one integrated closed circuit, soilless system. Aquaponics draws upon the

disciplines of both aquaculture and hydroponics that creates an approach for raising pesticide and herbicide free nutritious food indoors, all year round.

Integration into Missouri classrooms

St. Louis Suburb Maplewood Richmond Heights will be the first school district in Missouri to incorporate an aquaponics system into their facilities and school curriculum. The production of this facility is coordinated with Sub-Advisory Committee member and Chair of the St. Louis Food Policy Coalition Randy Wood, with the system coming from Myles Harston, founder of the AquaRanch in Flanagan, IL and practitioner of aquaponics since 1992.

Vertical Farming

Vertical farming is the cultivation of crops within skyscrapers, or other vertically inclined surfaces. Within these structures, hermetically sealed environments can be made that allow for growing and cultivation of food where, thanks to modern technology, the needs of these crops can still be met in order for their full growth.

High Tunnels

Also termed a 'hoop house', high tunnels are unheated greenhouses that extend the growing season of producers, often used on small-scale farms in order to increase profitability on the farm.

Low Tunnels

Miniature high tunnels, low tunnels are constructed to nurture cold resistant crops like lettuce and spinach through the winter months for harvest in early spring. Planting crops using low tunnels begins in early October. Supported by small hoops down the row of the planted crop, a polyester row cover is draped over the top of the structure. Midway through November an additional layer of plastic is placed over the top of the low tunnels for additional insulation.

Benefits of Strengthening Local Food Systems

Economic:

- "With increasing diversity in food imports, particularly the growth in tropical spices, seafood, and horticultural products, and the trend in increased processed product imports from developing countries, the developing countries' share of overall U.S. food imports grew from 49 percent in 2002 to 53 percent in 2007. This growth was fueled by increased imports from middle income countries, such as Mexico, China, Chile, and India, as well as low income countries, such as Vietnam and Bangladesh."[103]
- The United States imported 15% of the food consumed in 2007.
- There is a dollar multiplying effect that occurs when money is kept in the local economy.
- Fostering the growth of local food systems directly relates to jobs being kept in the local economy. Not only are farmers able to sell their produce to people that they know, but the jobs that are created have a benefit to the local economy that cannot be outsourced.

Food Insecurity Issues Facing Missourians

Table 4

	U.S. Food Imports	U.S. Food Imports from China
Bulk Food	**$6.9 Billion (2007)**	**$188 Million (2007)**
Intermediate Food	**$10.8 Billion (2007)**	**$683 Million (2007)**
Consumer Ready	**$60.1 Billion (2007)**	**$4 Billion (2007)**
Total	**$77.8 Billion (2007)** **$41 Billion (1998')**	**$4.8 Billion (2007)**

Food insecure households are those that were not able to afford a nutritionally adequate diet at all times in the past 12 months. For individuals and families, food insecurity may mean reducing food portions or skipping meals altogether, and it means the uncertainty of not knowing where their next meal will come from.

Missouri has the 5th highest rate of child food insecurity in the United States[104]

Overall, families with children (especially single-parent families) are at highest risk for food insecurity. Food insecurity is detrimental to our health, economy, and community. In food insecure households, children do worse in school and adults miss more days of work. Food insecure people have a harder time managing chronic illnesses and are more likely to suffer from diet-related health problems like diabetes and obesity because they often only have access to low-nutrient, high-fat foods.

2009 Data indicates that 16.8% or 990,770 Missourians are classified as food insecure[105]

Successful Urban Agriculture Operations in Missouri

City Seeds Urban Farm

City Seeds is a St. Louis urban farm spearheaded by 'Gateway Greening,' as well as through an alliance with the St. Patrick Center, St. Louis Master Gardeners, Operation Food Search, the Missouri Department of Transportation, and Horstmann Brothers Landscaping. Located between Market and Pine at 22nd Street in St. Louis, the food grown in 48 raised vegetable beds and fruit orchards is donated to food pantries, sold at the Tower Grove Farmers Market as well as to 'Food Outreach'. Programs at City Seeds follow two tracts. Participants in 'Therapeutic Horticulture,' overcoming homelessness, mental illness, chronic addiction, and/or prison release, take part in a 15 week program where they learn to grow food and work collectively with other gardeners. Funded through the St. Patrick Center and the U.S. Department of Labor participants in the 'Veterans GO! Green' program go through 10 weeks of intensive on-the-job training in green horticulture. Since August 2009 43 of the 58 Go! Green graduates have found work in related industries.[106]

Columbia Center for Urban Agriculture

Growing out of a project from the University of Missouri's student led organization Sustain Mizzou, the Columbia Center for Urban Agriculture has grown into a two-acre urban farm in the heart of downtown Columbia. CCUA reaches out to local schools and encourages educational school field trips led by urban farmers that

teach Missouri's urban youth where their food comes from. CCUA also operates a landscaping service to the citizens of Columbia, as well as helps to set up community gardens and instructs citizens in economically disadvantaged areas of the city how to care for those gardens.[107]

Cultivate Kansas City

A non-profit organization, with a base of operations on a two-acre organic vegetable farm located in Wyandotte County in Kansas City, Cultivate KC is a farm, classroom, and laboratory for social and agricultural investigation. Cultivating forty different crops produces 25,000 pounds of organic vegetables annually. Cultivate KC works as an educational outreach and development operation through their program "Get Growing KC Team." Cultivate KC delivers a tremendous service to the Kansas City region by developing new urban farms, mitigating the damaging effects of urban blight, educating citizens on how to grow their own food, and bringing communities together.[108]

Springfield Urban Agriculture Coalition

Springfield Urban Agriculture Coalition promotes healthy lifestyles and environments through hands on education about production and consumption of locally produced, natural, healthy foods. Through the 10 school gardens in the Springfield public school system project D.I.R.T., C.R.A.F.T. intern training project, as well as the Urban Roots Farm located in the heart of Springfield, SUAC is a vibrant example of the communal benefits urban agriculture can provide.[109]

Breakdown of House Bill 1660

- Creates distinctions for Urban Agriculture Zones (UAZ) either Grower, Vendor, or Processor.

- Distinction and approval of an Urban Agriculture Zone will be at the discretion of municipalities. Municipalities of 5,000 residents will be eligible, ensuring local control over UAZs.

- Provides tax abatement for blighted properties that qualify as UAZs (Chapter 353 Mo. Revised Statutes), as 10 years pre-assessed value, and 15 years at 50% of the assessed value.

- Provides a 50% discount to UAZs for hooking up to municipal water sources.

- UAZs will be eligible for wholesale water costs.

- Sales taxes in vendor UAZs will be placed into a fund overseen by the treasurer's office to be allocated to school districts as seed money for elementary and secondary school gardens.

"Blighted area", that portion of the city within which the legislative authority of such city determines that by reason of age, obsolescence, inadequate or outmoded design or physical deterioration have become economic and social liabilities, and that such conditions are conducive to ill health, transmission of disease, crime or inability to pay reasonable taxes;

Table 4

Cost of Vacant Properties in Kansas City (n=14,339)[110]	
To Communities	**To Cities**
Crime	Lower Tax Revenues
Fires	Delinquency
Public Health & Nuisances	Lower Property Value
Rat Infestations	Disposal Costs: $6 - $15 per square foot

Comments from the Agriculture Policy Committee:

"You know Representative I think that you are really on to something here....I think it's about time, and I applaud you."

- Representative Billy Pat Wright

"I am Truly Impressed."

- Representative Ed Schieffer

"I think that you have something here that is awesome for the urban areas of our State"

- Representative Paul Fitzwater

"I really appreciate your intent on this bill...we are literally running out of room to grow"

- Representative Bill Reiboldt

Review of Agriculture Policy Committee Proceedings on HB 1660

Tuesday February 28, 2012

Daryl Duwe (right) testifies on behalf of COAM in support of HB 1660.

The Composters and Organics Association of Missouri (COAM) represented by Daryl Duwe were the first group to testify in support of HB 1660. COAM was supportive of the entire process leading up to the hearing. Duwe delivered encouraging remarks for the potential of urban agriculture in our state indicating that in twenty years we all may look back and say that a thriving industry was created by the pending legislation, reflecting on the emergence of Missouri's composting industry, which was inadvertently created by a piece of legislation over twenty years ago regarding waste management practices.

Ted Mathys representing Environment Missouri's 3,000 plus members gave inspired testimony on HB 1660, citing that food items are currently transported over 1,500 miles from farm to kitchen, roughly the distance between Kansas City and Mexico City. Mathys brought up multiple environmental concerns regarding our transportation heavy food system, as well as the serious concerns that our urban areas have regarding food access. The pending bill would work to mitigate many of these concerns, as well as provide a tool to empower local entrepreneurs to repurpose blighted areas of our urban core.

Ted Mathys (right) testifying in support of HB 1660 on behalf of Environment Missouri.

Sue Baird, Executive Director of the Missouri Organics Association and Marketing Manager of Mystic Foods USA, made the trip to Jefferson City to support HB 1660.

Sue Baird's remarks to Agriculture Policy Committee members came from two fronts. The first involved Baird's role as the Executive Director of the Missouri Organics Association on the profitability associated with organic food productions, and the ability of smaller scale organic operations to stay "in the black" as the market for organic products is vibrant. Additionally, Baird indicated that HB 1660, through its tax abatement plan and wholesale water cost provisions, would encourage the repurposing of unproductive buildings, as is happening with Mystic Foods USA's work in repurposing a popcorn factory in Trenton, MO. Baird also indicated that organic certification of hydroponically-produced products will be happening in the near future, which would be a boon to the development of urban agriculture.

Baird's testimony was followed by Kathleen Logan Smith, Executive Director of Missouri Coalition for the Environment, who touted the benefits of strengthening local food systems mainly as a driver for local economic prosperity. Keeping our food production local and supporting our local farmers creates an economic stimulus package where money is circulated within the local economy.

Following Smith was Alycia Green who addressed Agriculture Policy Committee members as a citizen advocate from the standpoint of strengthening our communities' urban cores and creating an opportunity to teach school children valuable life lessons. Green urged the passage of this measure for the aspect of creating the 'Urban Agriculture Fund,' which will provide a direct revenue stream specifically for schools to establish gardens on their premises. Green's personal

experience advocating for gardens on school grounds has been met with opposition by many administrators who seem warm to the idea, but dismiss developing such programs due to lack of consistent or dedicated funding. Green pressed committee members to, "Help me grow self-sufficient children."

Closing the public hearing on HB 1660 was Don Steen representing the Missouri Farm Bureau. Steen's remarks were positive and supportive of the efforts to bring agricultural production into Missouri's urban centers, but cautioned members and advocates against creating a wedge between urban and rural agricultural production. This issue is not an'us versus them' issue, but rather a joint effort that goes towards feeding Missourians.

Discussion of Revisions to HB 1660

- Currently vendor UAZs must source 75% of their goods from the county that they are located in, or any adjoining counties. Discussion to modify this provision to either a mileage prescription or multiple counties away, citing areas of Missouri that are bordered by few counties (ex. St. Louis), as well as to account for producers that can have a reach beyond one county away (ex. Mystic Foods USA).

- Currently an organization wishing to create a UAZ must be located in a municipality greater than or equal to 5,000 inhabitants, which may be exclusive to smaller municipalities who would like to take advantage of the this legislation. There seemed to be support among committee members on lowering the size of municipality to be included in this legislation.

Organizations in Support of HB 1660[4]

Clayton Farmers' Market
Composting and Organics Association of Missouri (COAM)

[4] Organizations in support signed a letter of support prior to the hearing that was circulated to the Agriculture Policy Committee

Cultivate Kansas City
Gateway Greening, St. Louis
KC Organics and Natural Market
Local Initiatives Support Corporation of Greater Kansas City
PedNet, Coalition Building a Healthy and Active Community
Missouri American Institute of Architects
Missouri Organics Association
Mystic Foods USA, Trenton, Mo.
Springfield Urban Agriculture Coalition
St. Louis Composting
Urban Buds, LLC of St. Louis, Mo.
Urban Roots Farm, Springfield, Mo.

Testifying in Favor of HB 1660

Daryl Duwe—	Lobbyist, Composting and Organics Association of Missouri
Ted Mathys—	State Advocate, Environment Missouri
Sue Baird—	President, Missouri Organics Association Mystic Foods USA, Trenton, MO.
Kathleen Logan Smith—	Executive Director, Missouri Coalition for the Environment
Lynne Schlosser—	Lobbyist, Missouri Conservation and Environment Alliance
Bennie Lewis—	Lobbyist, Swope Community Builders
Alycia Green—	Citizen Advocate
Scott Swain—	Kansas City LISC

No opposition was voiced at the hearing

Testifying for informational purposes only

Don Steen –	Missouri Farm Bureau

Citations for ***Chapter Thirteen: Legislative History of HB 1660*** can be found in the bibliography on page 155.

Appendix A: Missouri Urban Agriculture Act Working Session

Agriculture Policy Committee
House Hearing Room 6
March 6, 2012

Agriculture Policy Committee	
Chairman Loehner	Representative Klippenstein
Vice-Chairman Reiboldt	Representative Nance
Representative Aull	Representative Schieffer
Representative Dugger	Representative Shively
Representative Entlicher	Representative Swinger
Representative Fitzwater	Representative Wright
Analyst Sarah Garoutte	Representative Johnson

The first working session on House Bill 1660 was opened with a discussion from Chairman Loehner who described the format of the working session. Generally, Chairman Loehner indicated to committee members that this would be an informal process where members would be able to work through their concerns together. Utilizing a working session allows members to flesh out their concerns with the proposed legislation, correct drafting errors, add sections that could potentially strengthen the bill before it comes out of committee, and address areas where there may have been oversights. The goal of these sessions is to create an opportunity for the committee to produce the best piece of legislation possible.

Representative Fitzwater gave general comments before the discussions on the bill's provisions were debated. Rep. Fitzwater noted that during the public hearing on HB 1660 there were two children in the audience accompanied by their father who were wearing their Future Farmer's of America (FFA) jackets. After noting the popularity of programs like FFA in rural areas Rep. Fitzwater went on to indicate that:

How neat it could be to get kids in involved in the urban areas, because we don't see this in the urban area, especially for children who are interested in agriculture and may not have the opportunity to get involved…this could be an opportunity to start something really special for the kids in the urban areas.

Working Session 3/6/12 Main Points	
Municipality Size	Discussions about lessening the municipality size were opened by legislators with areas of their district who may like the opportunity to establish UAZs, but do not qualify under the 5,000 inhabitant threshold in the original version of the legislation. Consensus around the thought of dropping the population requirement to a much lower number or even using the standard of "incorporated municipality," seemed widespread among committee members.
Educational Component	Committee members expressed concerns regarding the educational component, as UAZs would be required to dedicate resources one day a month for educational purposes for local school districts. School gardens that will be created poised similar concerns. What would be taught? How would it be taught? From what perspective will the instruction come from? Members expressed the desire to partner with Conservation or University-Extension to craft a curriculum of sorts.
Sales Tax Component	In the proposed legislation vending UAZs would remit non-constitutionally dedicated sales tax monies to a fund overseen by the Treasurer's office, establishing the "Urban Agriculture Urban Agricultural Zone Fund" for the purpose of setting up school gardens. The opinion was expressed that Urban Agricultural Zone Fund should be directed towards the school districts that the UAZ is established. Due to the fact that sales tax money will be diverted from funding those schools, those dollars should be reinvested in those areas.
Allowable Animals	The proposed legislation defines livestock as: cattle, calves, sheep, swine, ratite birds including but not limited to ostrich and emu, aquatic products as defined in section 277.024, llamas, alpaca, buffalo, elk documented as obtained from a legal source and not from the wild, goats, or horses, other equines, or rabbits raised in confinement for human consumption; Committee members expressed the idea of limiting the kinds of livestock allowable in UAZs, citing cultural acceptability in urban areas (potentially limit livestock to chickens, goats, fish, and rabbits).
Water Component	Proposed legislation would allow for UAZs to have access to 'wholesale water cost' (ex. Kansas City sells Blue Valley water at 'wholesale' cost). This provision could be difficult when applied to private companies. The State of Missouri may not have the ability to mandate that a company like Missouri American Water sell UAZs water at 'wholesale' cost. Similar concerns were brought up regarding 'hookups', which according to the proposed legislation would be available to UAZs at fifty percent reduced costs.

House Agriculture Policy Committee Passes HB 1660 11-0

Citations for ***Appendix A*** can be found in the bibliography on page 140.

Appendix B: Hearing Recaps

"In fact, most of what we need to know to design intelligent cities can be learned from farming."

- Randolph Hester Jr., *Design for Ecological Democracy*[111]

Kansas City July 11th, 2011
University of Missouri- Kansas City

Springfield August 23rd, 2011
Missouri State University

Columbia September 21st, 2011
University of Missouri-Columbia

St. Louis October 4th, 2011
Maplewood-Richmond Heights High School

Jefferson City January 24th, 2012
Missouri House of Representatives

Hearing Format

All hearings of the Joint Committee on Urban Agriculture were advertised, free, and open to the public for the purposes of both education as well as input from Missouri citizens. In compliance with Missouri state law, all hearings were noticed through the appropriate channels in the Missouri House of Representatives and appeared more than 24 hours prior to the actual meeting on the Missouri House of Representatives website. Prior to each of the first four hearings the committee was lead on a group tour of relevant urban agriculture locations. These tours were set up in conjunction with local urban agriculture experts and were intended to augment the knowledge gained by committee and subcommittee members, as well as show that the concepts being discussed were not merely prospective but have current, real world applications.

Kansas City Hearing

July 11th, 2011 – University of Missouri – Kansas City

Committee Tour: Katz Hall

The first hearing for Missouri's Joint Committee on Urban Agriculture in 2011 was held on the very same day that the committee was re-authorized into existence. Prior to the hearing committee members met at UMKC's "Katz Hall" for a tour and presentation by Professor Jake Wagner of the Architecture, Urban Planning, and Design school at the university. Professor Wagner's presentation focused on an overview of a course being taught within the Urban Planning and Design discipline, UPD 499B titled "Planning for Urban Agriculture." Students in this course develop an understanding of the global food system, learn about impacts of food production, distribution and waste in urban ecosystems, explore ways to integrate food production into cities that would create efficient and sustainable communities, experience new methods and technologies for urban food production, and learn about policies and regulatory approaches to support urban food systems. A large part of the course requires students to focus on urban agriculture patterns. In this exercise students identify, describe, and visualize patterns that are evident as part of existing and alternative food systems including urban agriculture. Teaching students these concepts in an academic setting puts the work at UMKC on the front lines of making the promise of urban agriculture a reality.

Professor Jake Wagner delivers a presentation, at UMKC's Katz Hall, prior to the urban agriculture hearing.

Public Hearing: UMKC Pierson Auditorium

The first public hearing for the committee was attended by better than 80 audience members, while the committee took testimony from 17 different organizations and Missouri citizens. The testimony was extremely rich in substance as well as emotion, as many participants were directly involved in this growing industry for their livelihood.

Rod Burnett, Senior Client Executive for IBM's Missouri division, tours the work of UMKC students at Katz Hall.

Problems associated with the development of urban agriculture generally centered around access to land, water, high quality, composted soil, and markets that could allow for financial viability of production. There was also a host of testimony provided on the presence of food deserts in Missouri's urban core and the potential that urban agriculture possesses in alleviating the problems associated with food access, as well as its potential as an educational tool to instruct citizens about where their food comes from.

The Greater Kansas City Food Policy Coalition's Executive Director Beth Low led off the evening's discussions. Having served three terms as a State Representative before taking over as Executive Director for GKCFPC, Low possesses a unique perspective on what the state legislature is capable of in moving urban agriculture forward in the state. Comments from Low praised several programs already going on in Missouri such as the Missouri Department of Agriculture's '10,000 Garden Challenge', outreach efforts by the University of Missouri Extension and Lincoln University Extension master gardeners' programs, as well as efforts by the Missouri State Treasurer's office through the 'Linked Deposit Program' for agriculture, which provides low interest loans to assist farmers in production expenses, acquiring new lands, and other agricultural ventures. Low suggested the 'Linked Deposit Program' be expanded in a way to include urban farmers, who under the current program would generally not qualify as the program requires anticipated farm income to exceed non-farm income. Land access for urban farmers could be ameliorated by reforming state statutes governing the Jackson County Land Trust, currently responsible for a large portion of vacant land in Kansas City that could potentially be turned into productive green space.

Also discussed was the dilemma that urban lands, if made available, present potential health concerns; soil needs testing and remediation of toxins and pollutants. Low suggested partnering with local governments and the Department of Natural Resources for soil testing purposes as well as applying for federal Brownfield dollars for site cleanup.

Another area where a discussion of state statutes could add to the viability of farmers by allowing for farmers to easily accept SNAP, WIC, and SFMNP purchases at farmers' markets. Currently there are several farmers' markets throughout the state that accept SNAP, but as a result of state policy WIC and SFMNP are not accepted. The presence of farmers' markets in the state of Missouri is strong, but small-scale farmers and urban farmers have trouble bringing their products to market. Small scale production makes it difficult for farmers to build licensed kitchens, purchase liability insurance, and complete the costly and time consuming process of GAP certification. Low sees the establishment of 'Food Hubs' as a route to mitigate these difficulties by providing farmers opportunities to overcome some of these structural and policy hurdles towards gaining access to new markets. Food Hubs also present the ability to create local jobs, while fighting urban blight and strengthening regional farms as well as specific communities. The state could play a role in the development of these hubs through TIF[5] money.

Many of the benefits of exploring urban agriculture as well as the challenges associated with the current climate of the industry initially voiced by Low were echoed by further testimony. Season Burnett from the Kansas City Community Supported Agriculture Coalition went into further detail with the idea of Missouri adopting 'cottage food laws.' These laws can be a way to encourage the production of small-scale value added products to supplement income. Typically, these products are jams, jellies, pickled and canned foods. Catie Nixon, Small Farm Specialist for Lincoln University's Cooperative Extension, detailed the work of the Innovative Small Farmers' Outreach Program unveiled in 2009. From the program's onset Nixon was inundated with requests for information regarding urban farming, which inspired a change in the programs direction to cater specifically to urban agriculture. Nixon has noticed two trends that are particularly inspiring. The first is that there is increasing interest in producing food in low-income communities. Food production in low-income communities allows for fresh produce in food deserts and for citizens to augment their income by selling

[5] Tax increment financing is a tool employed by governments to provide finances for certain capital improvement projects often done at local levels.

extra produce. The other trend noted by Nixon is the growing numbers of young citizens becoming engaged in growing food. The 2007 USDA census figures indicate that the average age for farmers in the United States is 57, which places America, and Missouri in particular, a state where agriculture drives the economy, in a situation where the next generation of farmers have to be identified and trained.

Particularly captivating testimony came from Greg Garbos of *Four Season Tools* in Kansas City. Garbos' organization specializes in season extension by helping farms install high tunnels. The implementation of high tunnels creates a unique opportunity for farms to extend their season, thus improving the economic viability of the plot. Garbos' testimony underscored this point by giving several success stories from around the country of farms that have improved their bottom lines with the help of *Four Season Tools*. The benefits of season extension are felt not only as a means of making plots more economically viable, but also by producing more locally grown food more Missouri families are fed.[112]

Cultivate Kansas City's Director and Advisory Subcommittee member Katherine Kelly gave the committee an overview of her two-acre farm operation in Kansas City that trains future farmers and grosses more than $100,000 annually in sales. Kelly also works in conjunction with Catholic Charities of northeast Kansas to develop twenty urban farm businesses owned by refugees and low-income citizens. Kelly provided a perspective to the committee that showcased the financial viability and opportunities for philanthropy associated with urban agriculture, but also from a more aggregate view in terms of reminding Missourians where their food comes from. Building communities around agricultural production has always been a crucial piece of our existence. The advent of the interstate highway system and cheap fuel has created a rift in that locally grown mentality. The movement to grow more food locally represents an acknowledgement of that rift and a desire to return to the culture of urban homesteading. A memorable quote from Kelly captures the vision of many participants in the hearing,

"Imagine Missouri citizens who live in urban areas being connected to and caring about Missouri agriculture and actively participating in it by choosing to buy from their urban and local farmer."

Interest in the development of urban agriculture has expanded into the highly technical world of International Business Management (IBM). In 2011, IBM launched the 'Smarter Cities Challenge.' This competitive grant program was awarded to 24 cities that submitted plans to build a 'Smarter Planet.' Each of the cities that were selected sought to analyze concerns in the avenue of public safety, budgeting and resource allocation, and the environment. The Joint Committee on Urban Agriculture was fortunate to hear a presentation from IBM Corporate Citizenship Manager Robert Reid. Mr. Reid educated the committee of work being done through the Smarter Cities program, and in particular work being implemented in Milwaukee through the program. In the summer 2011, a team of five IBM employees collaborated in Milwaukee around the concept 'Smarter Cities Feed Themselves.'[113]

Representative Zach Wyatt (R –Green Castle) takes a tour of Will Allen Growing Power Urban Farm in Milwaukee, Wisconsin

IBM's work in Milwaukee centered around three locations: "Will Allen Growing Power," a non-profit urban farm, "Sweet Water Organics," a commercial aquaponic farm in an old factory in Bay View, and "Natural Green Farms," a commercial aquaponic farm in an abandoned manufacturing building in Racine.[114] Milwaukee gained IBM's attention through the established aquaponic centers, the city's recent induction into the United Nations Global Compact Cities Programme, and the work being conducted by the city's Office of Environmental Sustainability.[115] Through their three-week analysis of these facilities and city programs, IBM consultants concluded that continued inclusion of urban agriculture and aquaponics into city design has the potential to address critical issues to improve the quality of life for Milwaukee residents. IBM's analysis attributes the benefits of these facilities not only to food production but also as a tool for job creation, neighborhood revitalization, and public safety. In Milwaukee's case, IBM

recommends the establishment of an 'Urban Agriculture and Aquaponics Council' and an 'Aquaponics Innovation Center,' developed market analyses for aquaponics production, and expansion of the city's Office of Environmental Sustainability.[6] Inclusion of IBM in this emerging industry gives credibility to the urban agriculture movement, as well as provides a stream of valuable insight for future progress.[116]

Springfield Hearing

August 23rd, 2011– Missouri State University

Committee Tour: Well-Fed Neighbor Alliance

The next stop for the Joint Committee on Urban Agriculture was Springfield, which is home to a number of local food movements. Prior to the hearing the delegation met at Well-Fed Neighbor Alliance convenience store. Well-Fed Neighbor Alliance is a group of individuals dedicated to the re-localization of the food supply, fuel supply, and economy. The convenience store is located at 1925 East Bennett Street in Springfield, Missouri and only offers locally produced food products. This business model provides more nutritious food products that travel less distance to the market, thus eliminating some of the carbon footprint and transportation costs. More importantly, the locally grown food offered at Well-Fed Neighbor Alliance acts as an economic stimulus to the community. In the previous meeting in Kansas City the committee heard testimony about the necessity of establishing 'food hubs.' The tour of Well-Fed Neighbor Alliance showed the committee a working example of a food hub, demonstrating this concept is not a mere novelty. The effort to get this store up and running is in large part due to the initiative and vision of its founder and member of the Advisory Subcommittee, Ruell Chappell.

Delaware Public School

Following Ruell's presentation at Well-Fed Neighbor Alliance, the delegation made their way to Springfield's Delaware Public School. Delaware

[6] For more information send email correspondence to ccca@us.ibm.com

Elementary, along with nine other Springfield schools, participated in a project known as D.I.R.T. (Dig-In R-12) during the 2010-2011 school year. The program is able to operate from a grant received from the Missouri Foundation for Health and through a dynamic partnership with the Springfield Urban Agriculture Coalition and 'Urban Roots Farm,' an urban farm operated by Adam and Melissa Millsap near downtown Springfield. In this partnership school gardens are set up at various chosen sites and utilized by teachers as part of the school curriculum. The gardens act as an outdoor teaching lab, allowing students to get dirty, have fun, and at the same time learn valuable lessons regarding our food system. Pieces of the curriculum tailored specifically for the gardens generally emphasis inquiry and the scientific method.

Springfield Schools Participating in DIRT		
Delaware Elementary	McGregor Elementary	Weller Elementary
Eugene Field Elementary	Midtown School Garden	Jarrett Middle School
Harrison Elementary	Rountree Elementary	York Elementary
Glendale High School		

Urban Roots Farm

The final tour destination for the committee prior to the hearing was 'Urban Roots Farm.' Owned by Melissa and Adam Millsap, Urban Roots Farm was created in 2010 and is located on just over one acre of land in the heart of the West Central neighborhood near downtown Springfield. Urban Roots Farm grew out of a project of the Springfield Urban Agriculture Coalition (SUAC) and strives to be a successful example of effective micro farming. With their harvests, the Millsap's would like to be able to supply 60 families with sustainably grown produce from their farm. Through the use of three high tunnels, Urban Roots Farm is able to extend their growing seasons to produce food through winter.

Public Hearing: Kenneth E. Meyer Alumni Center

Committee members were warmly welcomed to Missouri State University and greeted by an extremely engaged group of Springfield residents. Generally testimony at the Springfield public hearing centered on two topics: the general health benefits that consumers of locally produced food can expect, and the effects of re-localization of the food supply both in terms of practicality and economic impact.

Mellissa Millsap and Ann Wallenmeyer led off the evening's discussion with an overview of the SUAC. The mission of SUAC is the promotion of healthy lifestyles through education of citizens on the production and consumption of locally produced, healthy foods, which is carried out through D.I.R.T. gardens at Urban Roots Farm and the C.R.A.F.T. internship program. Ensuing testimony was received from Ken Llewellyn, who oversees the meal program at Springfield's Crane R-III schools. Llewellyn discussed the importance of bringing locally grown, nutritious food into our schools. Over 90% of the students at Crane participate in the reimbursable meal program, which leads to 225 breakfasts and 680 lunches served daily, with as much as twenty percent of the food served grown locally. Llewellyn has seen success with his efforts by getting students excited about eating healthy fruits and vegetables, which he attributes to their 'garden bar.' According to Llewellyn, the key is putting healthy options in school's cafeterias in an arrangement where the students are able to decide what they want.

Doctor, lawyer, and family farmer Allan Scarrow was able to offer a truly unique perspective when relating to committee members the changes in family practices on American farms over the past century. In the 1800s, 90% of Americans were engaged in farming, whereas nowadays only 2% are. This has been possible due to extremely high yields per acre. Where a farmer in 1940 could feed 19 people, today that same farmer can feed 155 people. Highly mechanized farm equipment and advances in fertilization have made this possible at the detriment of the nutritional value of food products. The UK Food Commission reported that between 1940 and 2002 iron content in steak is down 55% and 6% in milk, magnesium content in meat is down 7% and 21% in milk, and calcium is down 9% in cheese. While we may be able to feed more with less labor, the health

of our population is diminishing. Cheap food with little nutritional value, coupled with sedentary lifestyles, has produced an American population with alarming trends towards obesity and Type-II diabetes. These health concerns were echoed by Angela Jenkins, representing 'Moms for Local Foods,' a Springfield non-profit. Jenkins urged the committee to support policies relating to food based composting, elimination of taxes on locally grown foods, and development of support systems for local, small-scale production that could rival such support given to corporate farms.

Amanda Owen, who operates 'Homegrown Foods' store, and Ruell Chappell, whose Well-Fed Neighbor store the committee visited prior to the hearing, highlighted the economic opportunities associated with local food production. Owen's operation sells products that come from an average of only 12 miles away and as of August 2011 had purchased over $145,000 in local products. She is able to employ four part-time employees in this food hub operation. A statement echoed throughout the Springfield trip was the fact that locally grown food, sold in locally owned stores, keeps more dollars in the local economy.

Rick Scarlett gave testimony elaborating on the impact of re-localizing our food supply on watersheds. Re-localization of the food supply carries tremendous promise of bolstering local economies and improving the health of citizens, but also significant challenges. Bringing food production into the cities means that water will be necessary in areas that did not require it before. The scarcity of water will require urban farmers to evaluate water conservation techniques, from cisterns to rain barrels, and the wise use of water will be of pinnacle importance. Bringing food production into the cities also means that there will be a mitigation effect on local sewer systems, which will be a benefit to municipalities.[117]

Columbia Hearing

September 27th, 2011, University of Missouri-Columbia

Committee Tour: Columbia Center for Urban Agriculture CCUA

Committee members took a trip to the Columbia Center for Urban Agriculture (CCUA) prior to the public hearing. Located at 1209 East Smith Street in Columbia, CCUA sits on just over an acre of land in central Columbia. Previously a vacant lot, today CCUA is a robust urban agriculture operation featuring vegetable beds, blackberry and blueberry bushes, perennial asparagus and assorted herbs, fruit trees, flower gardens that bring in native pollinators, chicken coops, and bee hives. Community and Advocacy Coordinator for CCUA and member of the Joint Committee on Urban Agriculture's Advisory Subcommittee Adam Saunders walked the committee through the urban farm and explained the history of the farm as well as its function in the community.

From left to right: Adam Saunders, President of CCUA, leads committee members, Representative Holsman, and on a tour of the grounds.

CCUA operates education programs for Columbia residents in the form of both workshops and hosting field trips for local schools. Schools are able to tour CCUA and learn about composting, gardening, sprouting seeds, and vermin-composting. In addition to educational programs, CCUA operates a program in conjunction with organizations such as PedNet, to set up gardens in low-income neighborhoods. All produce is available for sale on the grounds of CCUA, where EBT and SNAP customers are given a 50% discount on all purchases.

Subcommittee member Mary Still (left) and Representative Holsman (right) inspecting the operations at CCUA

Public Hearing: Bradford Research and Extension Center

The trip to Columbia brought up a host of issues experienced by individuals on the ground level of the urban agriculture movement. Concerns over water access and associated expenses brought up in Springfield were echoed in Columbia. Hooking up to the municipal water supply or purchasing water from the city can be expensive, especially during hot and dry summers as was experienced in 2011.

Land access was another area of concern to presenters in Columbia. When community gardening associations are able to gain access to land they are able to dig in and begin work, but that land is most often still owned by another party, bringing uncertainty as to the long-term existence of the garden. Leases often involve little more than a verbal contact from year to year. This level of uncertainty makes capital improvement projects to community gardens and urban farms less likely and adds stress to the lives of urban farmers and gardeners.

St. Louis Hearing

October 4th, 2011, Maplewood-Richmond Heights

Committee Tour: Kinloch Community Farm

Committee members convened on October 4th at a community farm outside of St. Louis in Kinloch, Missouri, on a stretch of land just outside Lambert International Airport. Lambert owns the land but a verbal contract with Lambert agents dictates that the land will not be developed, but instead be preserved for farmers to work the land. One of the community farmers, Cleo Tuckson, led the group around the plots, each meticulously maintained by individual farmers. Harvests from the farmers' plots are shared between the farmers as well as given away to the larger community. A variety of crops are grown at the community farm. The group that works the land is known as the 'Garden Boys,' and has been documented by a CNN photographic documentary.[118]

Maplewood-Richmond Heights School District

Following the Kinloch tour, committee members made their way south to the Maplewood-Richmond Heights school district, acclaimed for their 'Healthy Eating with Local Produce' program, a farm-to-school program created to infuse cafeteria food selection in the MRH school district with greater amounts of healthy, nutritious, locally grown foods. Collaboration between Congressman Russ Carnahan, Saint Louis University, and support of MRH Superintendent Dr. Linda Henke were able to make the prospect of this program a reality in the schools. Roughly 30 percent of the food served in MRH cafeterias are sourced within 100 miles of the school, delivered to Saint Louis University for processing in their certified kitchen, and then brought directly into MRH schools.

Beyond the cafeteria menu, MRH explores a number of innovative and forward thinking programs in their school system. Members of the committee saw these aspects firsthand as they were guided by Superintendent Henke through the school gardens and viewed the chicken coops at the Early Childhood Learning center. A final stop was made at the school beehives as committee members made their way to MRH High School. Middle school students manage the hives and harvest the honey produced.

Public Hearing: Maplewood-Richmond Heights High School

Dr. Henke kicked off the dialogue for the hearing by welcoming the committee to MRH and articulating some of the programs unique to MRH, many of which members were able to witness earlier in the day. Dr. Henke commented on successful salad bars in the cafeterias, a note made evident two months prior in Springfield by Ken Llewellyn. MRH may be on the frontlines of another venture to bring aquaponics into the schools to raise tilapia for consumption. Dr. Henke made it clear that taking up the cause of allowing students to consume healthy, local and nutritious foods is neither faddish nor trendy. Education of where our food comes from and building a healthy citizenry are some of the most important problems we can undertake and correlates to increased academic success. Ending her presentation, Dr. Henke challenged the committee stating, "We have the opportunity to change the face of our cities, by weaving small farms and gardens into our cities."

The importance of composting was articulated by the Missouri Composters and Organic Association, who gave credit and support for organizations such as Gateway Greening for helping beginning farmers and community gardeners purchase compost for their projects. Earth Dance's Molly Rockamann expanded upon the position of sustainable farming and gardening as she brought committee and audience members up to speed on the operation of her organization's 14-acre organic farm in Ferguson, MO. The historic 'Mueller Farm' not only produces harvests of natural, organic food, but also acts as a classroom. Having trained 72 organic farmers in the past three years and been the sight for summer camps operating in partnership with the Ferguson-Florissant school district, Earth Dance is at the forefront of producing the next crop of Missouri's organic farmers.

Jefferson City Hearing

January 24th, 2012 – Missouri State Capitol Building

House Hearing Room 7

The Joint Committee on Urban Agriculture met on January 24th for the fifth time since July. The body of knowledge available to committee and members was expanded in this meeting to include national as well as international perspectives.

Visionary Message

Dr. Dickson Despommier

The committee hearing opened with remarks from Dr. Dickson Despommier. Dr. Despommier is a professor at Columbia University whose background is in infectious disease ecology, specifically in Trichinella infection research. Dr. Despommier has pioneered the concept of 'vertical

Dr. Despommier testifies before the Joint Committee on Urban Agriculture

farming,' from which he has authored a novel, "The Vertical Farm: Feeding Ourselves and the World in the 21st Century."

The thought behind the vertical farm is one that explores the issue of food production through the lens of land scarcity. As the population of our planet grows and urban centers continue to expand and develop former and potential agricultural lands, the question remains how to feed the world. The current state of affairs shows that agricultural lands take up a landmass the size of South America to feed 7 billion humans. Projections show that the Earth's population will grow by at least an additional two billion in the next forty years, which means that to accommodate the growing population, if business is conducted as usual, there will need to be an additional 2.1 billion acres of farm land, roughly the size of Brazil. This realization is sobering and requires an examination of any and all potential alternatives.

Vertical farming supports say that society needs to rethink how and where we grow our food. As population growth continues to crowd cities, it only makes sense that cities begin to facilitate their own food production. Facilities raising food indoors can meticulously monitor the progress of the crop—techniques such as drip irrigation, aeroponics, and hydroponics provide the methodology for making these developments a reality. Dr. Despommier made reference to this past year's unpredictable and harsh climate patterns. Tsunamis ripped through Asia decimating crop production, droughts in Texas left farmland unproductive, and in Missouri flooding left crops in the Bootheel swamped (the USDA has paid out $17.2 billion over the last three years in crop insurance payments).[119]

The economics associated with this ambitious undertaking could be fairly robust. Repurposing buildings in urban centers for agricultural production will take manpower, engineering, and maintenance. The social aspect should not be overlooked either, as Dr. Despommier articulated that bringing food production operations into cities will bring multiple benefits to the citizens of these towns: pride, a healthy local source of food, and an economic boost that cannot be outsourced.

Ideas discussed by Dr. Despommier are not merely theoretical, but are actually happening in various cities around the world. The closest example to Missouri is in Chicago at a facility that has been coined 'The Plant,' a repurposed meat packing plant that is in the process of being converted into a carbon net-zero vertical farm. 'The Plant' will take a retired industrial building and transform it into a facility that employs 125 workers and provides spaces for business incubation and educational opportunities to the community, all the while producing fresh food in the heart of one of the most populated cities in the world.[120] Dr. Despommier credited Missouri with taking steps towards moving urban agriculture forward. With top universities to partner with, tremendous organizations such as the Missouri Botanical Gardens, and a legislature that had the foresight to authorize the Joint Committee on Urban Agriculture, Missouri is in a unique position to make a significant contribution to an emerging industry.

James Godsil and Emmanuel Pratt

The Joint Committee took testimony from Sweet Water Organics Co-Founder James Godsil and Executive Director of the Sweet Water Organics Foundation and Chicago State University Professor Emmanuel Pratt. Sweet Water Organics began in a retired crane factory in Milwaukee's south side Bay View neighborhood in 2008. The crane factory was repurposed with work from unemployed and underemployed tradesmen from the Milwaukee area. Godsil was able to put his 30-plus years of roofing experience as the President of the Community Roofing and Restoration Company to work constructing this urban fish and vegetable farm.

From left to right: Emmanuel Pratt, Representative Holsman, and Dr. Despommier after the Jefferson City hearing.

Utilizing aquaponics, the synthesis of aquaculture and hydroponics, Sweet Water is

able to grow lettuce, basil, watercress, tomatoes, peppers, chard, and spinach while raising tilapia and perch in a controlled indoor environment all year long. Since 2008, Sweet Water has become a vibrant example of the potential within the urban agriculture movement. Sweet Water has forged relationships with local restaurants that gladly purchase their produce and fish. The Sweet Water facility is able to raise 35,000 perch and 20,000 tilapia in their aquaponics systems.
Godsil and Pratt hit on the points of re-engaging urban areas and the general restructuring of post-industrial cities.

This vision applies not only to places like Detroit, Milwaukee, or Chicago but every urban and metropolitan area that have seen the manufacturing and industrial base of their cities relocate, leaving behind an unemployed workforce, and assembly lines with nothing to assemble. Godsil and Pratt are working towards training the next evolution of urban farmers and entrepreneurs through the many educational outlets of their organization, with a focused mantra of 'turning waste into community resource.'

Sweet Water's success has gained national acclamation from the *New York Times, Wall Street Journal*, and IBM, which gives the Sweet Water mission momentum. Godsil remarked to committee members that he would like to see the experimentation and development of a major aquaponics facility in every major city within the next five years, which should influence national discourse on urban agriculture to the presidential level.

<u>St. Louis Alliance and Developments: FarmWorks</u>

A collaborative group that has come together on a grand project incorporating urban agriculture in St. Louis testified before the Committee. The project in question is termed 'FarmWorks' and is an effort drawing resources from: Gateway

Francisco Gomes articulates the involvement of Novus International in the FarmWorks project

Greening Inc, a non-profit gardening group, Novus International, a St. Charles-based health and nutrition development institution, Grand Center Inc, a non-profit organization that oversees the development of St. Louis' historic arts and cultural district, and Loftworks, a St. Louis real estate development company.[121]

The collaborative efforts aim to put together a facility on St. Louis' riverfront just north of downtown. FarmWorks will re-purpose the former St. Louis Stamping Company facility into an innovative urban farm, coupled with housing, business incubation, and educational components. FarmWorks will produce food for commercial sale, provide housing and job training opportunities for organizations such as the St. Patrick Center, as well as offer low cost warehouse space for developing 'green' businesses in the St. Louis area that encourage sustainable living practices.[122] Gateway Greening, which currently operates 140 residential and 60 school based gardens in the St. Louis area, will provide training in urban agriculture techniques for St. Patrick Center clients, encompassing veterans, the homeless, and individuals suffering from mental health issues. The space for business incubation will focus on the processing and distribution of locally grown foods. The educational component will allow for on-site classes and tours for area schools and the public through St. Louis University, Washington University, the Missouri Botanical Garden, and others.

This joint effort represents a robust and all-encompassing attempt to leverage social capital by providing educational opportunities and giving the unemployed job skills all the while producing healthy, local food and re-purposing a deserted section of St. Louis, which lies in the shadow of the iconic St. Louis Arch. Partner in this endeavor, Grand Center Inc., will act as a conduit linking the operations

Gateway Greening Board chair David Hoffman gives testimony on the collaborative efforts of FarmWorks.

Left to right: Francisco Gomes (Novus), David Hoffman (Gateway Greening), Travis Howser (Grand Center Inc.), and Craig Heller (LoftWorks).

at FarmWorks to area schools and restaurants.

There will be an aquaponics production housed in the FarmWorks structure run by Novus International. Novus, represented at the hearing by Global Aquaculture Manager Francisco Gomes and Methionine specialist Erik Dahl, has produced a wealth of knowledge within the aquaculture and aquaponics discipline. Mr. Gomes gave the committee a cautionary note about the dangers of starting too small with an aquaponics production. The thought of starting small and growing the operation is attractive and inspires the notion of vetting inevitable obstacles, however, in this instance the expertise dictates that only operations of a certain volume will become economically viable, given that the science and engineering of the operation are sound.

Myles Harston

Joining the committee from Flanigan, Illinois as a practitioner of aquaponics since 1992, Myles Hartson is the founder of the AquaRanch and has been referred to colloquially as one of the fathers of aquaponics. Mr. Harston gave the committee the perspective of viewing aquaponics as a means to increase our food security, as well as mitigate the negative effects of depleting current fishery stocks around the world and the amount of pollution being placed into our waterways given current forms of raising aquaculture.

Mr. Harston indicated to the committee that America imports roughly 80% of the fish it consumes, often traveling weeks on ships then having to be transported to market by trucks. Fish are often treated with carbon dioxide as a way of preserving the exterior as to appear attractive to the consumer, when really the product may be deficient in many nutritious categories.

Conversely, aquaponic facilities give the producer the ability to create nutritious fish undisturbed by hormones or treatment of any kind. The aquaponic system must be kept in a precise symbiotic relationship between plants and fish, as anything you do to the fish affects the produce and vise versa.

Mr. Harston urged the committee not to engage in lawmaking that groups the production of fish and aquaculture with the kinds of standards and regulation as cattle and livestock, as these types of production are wholly separate and deserve to be treated as such.

Mr. Harston's efforts are expanding to the St. Louis area with the installation of one of his systems into Maplewood-Richmond Heights High School (former informational hearing site 10/4/10), as well as with the construction of an aquaponics production facility in Pagedale in conjunction with Sub-Advisory Committee member Randy Wood.

Left to right: Rusty Lee (Advisory Committee member), Emmanuel Pratt, Representative Holsman, Myles Harston (AquaRanch), Dr. Despommier, James Godsil (Sweet Water Co- Founder), and Adam Saunders.

Following professionals testified at the hearing:

- *Dr. Dickson Despommier*, Professor at Columbia University, Author "The Vertical Farm: Feeding Ourselves and the World in the 21st Century"[123]
- *Francisco Gomes*, Global Aquaculture Manager with Novus International[124]
- *Erik Dahl*, Specialist with Novus International[125]
- *David Hoffman*, Board Chairman of Gateway Greening[126]
- *Craig Heller*, Managing Partner of Farmworks/Loftworks[127]
- *Travis Howser*, Director of Events at Grand Center, Inc.[128]
- *James Godsil,* Co-Founder of Sweet Water Organics[129]
- *Emmanuel Pratt,* Executive Director of the Sweet Water Foundation[130]
- *Myles Harston,* Founder of AquaRanch[131]

The Joint Committee on Urban Agriculture has taken testimony from the following sources:

Office of the City Attorney, Kansas City * MU Extension Master Gardeners * Office of Collections, Jackson County * Greater Kansas City Food Policy Coalition * Cultivate Kansas City *Kansas City, City Council * Lincoln University Cooperative Extension * Four Season Tools * KC Organics Farmers' Markets *St. Louis Food Policy Council * Menorah Legacy Foundation * Kansas City Beans and Greens Program * Missouri State University * Fassnight Farm, Springfield * Springfield Urban Agriculture Coalition (SUAC) * Crane R-III School District * Butler Rosenbury and Partners Architects * CoxHealth * Moms for Local Food * Health is Local * Urban Roots Farm * Well Fed Neighbor Cooperative and Store * Springfield Public Schools * Homegrown Food LLC. * University of Missouri Agriculture and Natural Resources Extension * Columbia Community Garden Coalition * Missouri Council for Activity and Nutrition * Columbia Farmers' Market * Sustain Mizzou * Red and Moe's Pizza * Smart Growth * PedNet * Columbia Center for Urban Agriculture * Maplewood-Richmond Heights School District * Friends of the City of Richmond Heights *EarthDance *YellowTree Farm * Old North Grocery Co-op * Composters and Organics Association of Missouri * Gateway Greening * Sassafras Valley Farm * Kinloch Garden Boys * Yours Inc. * Myles Harston * Emmanuel Pratt * James Godsil * Travis Howser * Craig Heller * David Hoffman * Erik Dahl * Francisco Gomes * Dr. Dickson Despommier

Citations for ***Appendix B*** can be found in the bibliography on pages 155-6.

Appendix C: Missouri House Bill 1660

Bill Text as introduced:

262.900. 1. As used in this section, the following terms mean:

(1) "Agricultural products", an agricultural, horticultural, viticultural, or vegetable product, growing of grapes that will be processed into wine, bees, honey, fish or other aquacultural product, planting seed, livestock, a livestock product, a forestry product, poultry or a poultry product, either in its natural or processed state, that has been produced, processed, or otherwise had value added to it in this state;

(2) "Blighted area", that portion of the city within which the legislative authority of such city determines that by reason of age, obsolescence, inadequate or outmoded design or physical deterioration have become economic and social liabilities, and that such conditions are conducive to ill health, transmission of disease, crime or inability to pay reasonable taxes;

(3) "Domesticated animal", cattle, calves, sheep, swine, ratite birds including but not limited to ostrich and emu, llamas, alpaca, buffalo, elk documented as obtained from a legal source and not from the wild, goats, or horses, other equines, or rabbits raised in confinement for human consumption;

(4) "Grower UAZ", a type of UAZ:

(a) That can either grow produce, raise livestock, or produce other value added agricultural products;

(b) That has up to five square feet per chicken and other birds and twenty square feet per other domesticated animal;

(c) That does not exceed fifty laying hens, six hundred fifty broiler chickens, or thirty domesticated animals;

(5) "Livestock", cattle, calves, sheep, swine, ratite birds including but not limited to ostrich and emu, aquatic products as defined in section 277.024, llamas, alpaca, buffalo, elk documented as obtained from a legal source and not from the wild, goats, or horses, other equines, or rabbits raised in confinement for human consumption;

(6) "Processing UAZ", a type of UAZ:

(a) That processes livestock or poultry for human consumption;

(b) That meets federal processing laws and standards;

(7) "Meat", any edible portion of livestock or poultry carcass or part thereof;

(8) "Meat product", anything containing meat intended for or capable of use for human consumption, which is derived, in whole or in part, from livestock or poultry;

(9) "Poultry", any domesticated bird intended for human consumption;

(10) "Value added agricultural products", any product or products that are the result of:

(a) Using an agricultural product grown in this state to produce a meat or dairy product in this state;

(b) A change in the physical state or form of the original agricultural product;

(c) An agricultural product grown in this state whose value has been enhanced by special production methods such as organically grown products; or

(d) A physical segregation of a commodity or agricultural product grown in this state that enhances its value such as identity preserved marketing systems;

(11) "Urban agricultural zone" or "UAZ", a zone that contains the following activities to qualify for the benefits provided under this section:
(a) Any organization or person who grows produce or other agricultural products;
(b) Any organization or person that raises livestock or poultry;
(c) Any organization or person who processes livestock or poultry;
(d) Any organization that sells at a minimum seventy-five percent locally grown or raised (in the UAZ county or adjoining county) food;
(12) "Vending UAZ", a type of UAZ:
(a) That sells produce, meat, or value added agricultural goods produced in the UAZ's county or adjoining county;
(b) That applies to the department of agriculture for an UAZ vendor license;
(c) That is able to accept SNAP as a form of payment.
2. (1) A person or organization shall submit to and be approved by a municipality with a population of at least five thousand people an application to develop an UAZ on a blighted area of land. Such application shall contain the following:
(a) Shall demonstrate or identify on the application:
a. If the person or organization is a grower UAZ, processing UAZ, vending UAZ, or a combination of all three types of UAZs provided in this paragraph, in which case the person or organization shall meet the requirements of each type of UAZ in order to qualify;
b. The number of jobs to be created;
c. The types of products to be produced (i.e. produce, value added agriculture products, livestock/domesticated animal);
d. If applying for a vending UAZ, the ability to accept SNAP if selling products to consumers;
(b) A plan for educational opportunities. The UAZ shall offer internal resources to provide at least one educational opportunity per month to local school districts.
(2) Approval of the UAZ by such municipality shall be reviewed five and ten years after the development of the UAZ. After twenty-five years, the UAZ shall dissolve.
3. Once the requirements of this section have been complied with, the real property of the UAZ shall not be subject to assessment or payment of ad valorem taxes on real property imposed by the cities affected by this section, or by the state or any political subdivision thereof, for a period of ten years at which time the property shall then be reassessed. The UAZ shall then pay fifty percent of the assessed value for the next fifteen years.
4. A grower UAZ shall pay wholesale for the cost of water consumed on the UAZ. The grower UAZ shall pay fifty percent of the standard cost to hook the water source.
5. (1) Any sales tax revenues received from the sale of products sold in the UAZ, excluding sales taxes that are constitutionally dedicated, taxes deposited to the school district trust fund in accordance with section 144.701, sales and use taxes on motor vehicles, trailers, boats, and outboard motors, and future sales taxes earmarked by law, shall be deposited in the urban agricultural zone fund established in subdivision (2) of this subsection. School districts may apply to the state treasurer for money in the fund to be used for the development of gardens on school property.
(2) There is hereby created in the state treasury the "Urban Agricultural Zone Fund", which shall consist of money collected under subdivision (1) of this subsection. The state treasurer shall be custodian of the fund. In accordance with sections 30.170 and 30.180, the state treasurer may approve disbursements. The fund shall be a dedicated fund and, upon appropriation, money in

the fund shall be used solely for the administration of subdivision (1) of this subsection. Notwithstanding the provisions of section 33.080 to the contrary, any moneys remaining in the fund at the end of the biennium shall not revert to the credit of the general revenue fund. The state treasurer shall invest moneys in the fund in the same manner as other funds are invested. Any interest and moneys earned on such investments shall be credited to the fund.
6. The provisions in this section shall supercede any local ordinances to the contrary.[132]

Citations for ***Appendix C*** can be found in the bibliography on page 156.

Appendix D: Missouri House Bill 458

Missouri HB 458, passed in 2011, contained the following language:

262.815. 1. This section shall be known and may be cited as the "Missouri Farmland Trust Act". The purpose of this section is to allow individuals and entities to donate, gift, or otherwise convey farmland to the state department of agriculture for the purpose of preserving the land as farmland and to further provide beginning farmers with an opportunity to farm by allowing long-term low and variable cost leases, thereby making it affordable for the next generation of farmers to continue to produce food, fiber, and fuel.

2. There is hereby created the "Missouri Farmland Trust" which shall be implemented in a manner to accomplish the following objectives:

(1) Protect and preserve Missouri's farmland;

(2) Link new generations of prospective farmers with present farmers; and

(3) Promote best practices in environmental, livestock, and land stewardship.

3. (1) There is hereby created within the department of agriculture the "Missouri Farmland Trust Advisory Board" which shall be comprised of five members appointed by the director of the department of agriculture. Members shall serve without compensation but, subject to appropriations, may be reimbursed for actual and necessary expenses.

(2) The board shall make recommendations to the director on the appropriate uses of farmland in the trust, criteria to be used to select applicants for the program, and review and make recommendations regarding applications to lease farmland in the trust.

(3) Members shall serve five-year terms, with each term beginning July first and ending June thirtieth; except that, of the members initially appointed two shall be appointed for a term of three years, two shall be appointed for a term of four years, and one shall be appointed for a term of five years. Each member shall serve until his or her successor is appointed. Any vacancies occurring prior to the expiration of a term shall be filled by appointment for the remainder of such term. No member shall serve more than two consecutive terms.

4. The department of agriculture is authorized to accept or acquire by purchase, lease, donation, or agreement any agricultural lands, easements, real and personal property, or rights in lands, easements, or real and personal property, including but not limited to buildings, structures, improvements, equipment, or facilities subject to preservation and improvement. Such lands shall be properties of the Missouri farmland trust for purposes of this section and shall be governed by the provisions of this section and rules promulgated thereunder.

5. (1) There is hereby created in the state treasury the "Missouri Farmland Trust Fund", which shall consist of all gifts, bequests, donations, transfers, and moneys appropriated by the general assembly under this section. The state treasurer shall be custodian of the fund. In accordance with sections 30.170 and 30.180, the state treasurer may approve disbursements. Upon appropriation, money in the fund shall be used for the administration of this section and may be used to make payments to counties for the value of land as payment in lieu of real and personal property taxes for privately owned land acquired after the effective date of this section in such amounts as determined by the department; except that, the amount determined shall not be less than the real property tax paid at the time

of acquisition. The department of agriculture may require applicants who are awarded leases to pay the property taxes owed under this section for such property.

(2) Notwithstanding the provisions of section 33.080 to the contrary, any moneys remaining in the fund at the end of the biennium shall not revert to the credit of the general revenue fund.

(3) The state treasurer shall invest moneys in the fund in the same manner as other funds are invested. Any interest and moneys earned on such investments shall be credited to the fund.

6. The department of agriculture is authorized to accept all moneys, appropriations, gifts, bequests, donations, or other contributions of moneys or other real or personal property to be expended or used for any of the purposes of this section. The department may improve, maintain, operate, and regulate any such lands, easements, or real or personal property to promote agriculture and the general welfare using moneys in the fund. Property acquired by the department under this section shall be used for agricultural purposes. The director shall establish by rule guidelines for leasing farmland to the trust to beginning farmers for a period not to exceed twenty years. All property acquired by the department under this section shall be farmed and maintained using the best environmental, conservation, and stewardship practices as outlined by the department. The department may charge an administrative fee for lease application processing under this section.

7. The department, in consultation with the Missouri farmland advisory board, shall promulgate rules to implement the provisions of this section, including but not limited to requirements for lessees, selection process for granting leases, and the terms of the lease, including requirements for applicants, renewal process, requirements for the maintenance of real and personal property by the lessee, and conditions for the termination of leases.

8. Any person or entity donating land to or leasing land from the department shall forever release the state of Missouri, the Missouri department of agriculture, the department's director, officers, employees, volunteers, agents, contractors, servants, heirs, successors, assigns, persons, firms, corporations, representatives, and other entities who are or who will be acting in concert or privity with or on behalf of the state from any and all actions, claims, or demands that he or she, family members, heirs, successors, assigns, agents, servants, employees, distributees, guardians, next-of-kin, spouse, and legal representatives now have or may have in the future for any injury, death, property damage related to:

(1) Participation in such activities;

(2) The negligence, intentional acts, or other acts, whether directly connected to such activities or not, and however caused; and

(3) The condition of the premises where such activities occur.

9. Any rule or portion of a rule, as that term is defined in section 536.010, that is created under the authority delegated in this section shall become effective only if it complies with and is subject to all of the provisions of chapter 536 and, if applicable, section 536.028. This section and chapter 536 are nonseverable and if any of the powers vested with the general assembly pursuant to chapter 536 to review, to delay the effective date, or to disapprove and annul a rule are subsequently held unconstitutional, then the grant of rulemaking authority and any rule proposed or adopted after August 28, 2011, shall be invalid and void.[133]

Citations for ***Appendix D*** can be found in the bibliography on page 156.

Appendix E: Land Banking Press Release

From the Office of Representative Jason Holsman[134]

17 May 2012

Jefferson City - At 1:00 AM on May 17, with only two days remaining in the 2012 legislative session the Missouri General Assembly truly agreed and finally passed a bill which would allow for the establishment of a 'Land Bank' in Kansas City.

The concept of a land bank is to empower a local agency to facilitate transferring properties that were not sold during public auction, back into the hands of private ownership. The Kansas City area is currently home to over 12,000 vacant properties.

The bill HB 1659 sponsored by Noel Torpey (R- Independence), specifically allows for Kansas City, Missouri to establish a land bank agency for the management, sale, transfer, and other disposition of tax delinquent land to return it to specified effective use. The legislation was co-sponsored by several representatives in both political parties.

"This victory for Kansas City was a bipartisan effort. It took the attention of engaged legislators from both sides of the aisle to come together to develop the solution for our city's problems with urban blight. This legislation would not have passed without the efforts of Democratic Representatives Holsman, Brown, and Rizzo, along with the entire Kansas City caucus," said the bill's sponsor Rep. Torpey.

An amendment offered by Senator Ridgeway (R - Clay County) limited the number of consecutive parcels of property that the land bank can sell to three. This measure was put in place to limit the ability of any single organization from purchasing and holding large amounts of land for future development.

"This major piece of legislation will provide a tool for Kansas City to reverse the trends of blighted properties. Ten years from now we will see a much

different Kansas City, largely because this effort helped to promote new private investment in our vacant tracts of land," said Rep. Holsman.

The Greater Kansas City Local Initiatives Support Corporation (LISC) assisted in the preparation of the legislation and provided support through the process.

Land banking legislation passed the Missouri House on March 8th by a vote of 136 to 10, and cleared the Senate 32 to 2. This measure will now head to Governor Nixon for his signature.

###

Citations for ***Appendix E*** can be found in the bibliography on page 156.

Appendix F: SFMNP Grant Levels by State FY 2006-2011

STATE AGENCY	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010	FY 2011
ALABAMA ***	$428,980	$393,238	$380,323	$392,164	$137,252	$137,252
ALASKA	245,559	225,100	217,707	224,485	224,485	224,485
ARIZONA	256,824	235,426	227,694	234,783	234,783	234,783
ARKANSAS	207,434	190,151	183,906	189,632	189,632	189,632
CALIFORNIA	2,622,887	2,404,358	2,325,395	2,397,794	2,499,368	2,499,368
CONNECTICUT	347,033	318,120	307,672	317,251	330,690	360,991
FLORIDA	310,342	284,486	275,143	283,709	283,709	309,705
GEORGIA	1,102,499	1,016,142	982,769	1,013,366	1,056,293	1,153,081
ILLINOIS	423,337	388,066	375,321	387,006	403,400	440,363
INDIANA	278,055	254,888	246,517	254,192	264,960	289,238
IOWA	542,988	497,748	481,400	496,388	517,416	564,827
KENTUCKY	245,535	225,077	217,685	224,462	224,462	224,462
LOUISIANA	6,667	6,667	6,667	6,667	6,667	9,167
MAINE	75,000	75,000	75,000	75,000	75,000	75,000
MARYLAND	373,382	342,273	331,032	341,338	355,798	388,400
MASSACHUSETTS	514,124	471,289	455,810	470,001	489,911	489,911
MICHIGAN	436,452	400,088	386,948	398,995	415,897	449,436
MINNESOTA	335,847	307,865	297,754	307,024	320,030	349,354
MISSISSIPPI	75,000	75,000	75,000	75,000	78,177	114,177
MISSOURI	**	235,713	227,972	235,070	**	**
MONTANA	57,353	57,353	57,353	57,353	59,782	59,782
N. CAROLINA	309,433	283,652	274,336	282,877	282,877	282,877
NEBRASKA *	**	**	**	**	**	75,000
NEW HAMPSHIRE	117,727	107,918	104,373	107,623	107,623	**
NEW JERSEY	1,343,170	1,231,261	1,190,823	1,227,898	1,279,913	1,279,913
NEW MEXICO	332,650	304,934	294,919	304,101	304,101	304,101
NEW YORK	3,769,708	3,455,625	3,342,131	3,446,188	3,593,015	3,922,243
OHIO	569,208	521,783	504,646	520,358	542,401	542,401
OREGON	400,053	366,722	354,678	365,721	381,213	416,143
PENNSYLVANIA	1,957,834	1,794,715	1,735,773	1,789,814	1,865,634	2,036,582
RHODE ISLAND	166,621	152,739	147,723	152,322	152,322	152,322
S. CAROLINA	140,747	129,021	124,784	128,669	128,669	153,669
TENNESSEE	81,000	75,000	75,000	75,000	78,177	96,000
TEXAS	1,397,010	1,280,615	1,238,556	1,277,117	1,277,117	1,277,117
VERMONT	75,000	75,000	75,000	75,000	78,177	82,000
VIRGINIA	328,468	301,101	291,212	**	**	**
WASHINGTON	643,471	589,859	570,486	588,247	613,166	669,350
WEST VIRGINIA	70,000	70,000	70,000	70,000	72,965	74,965
WISCONSIN	676,753	620,368	599,993	618,673	644,881	703,971
TOTALS	**$23,809,901**	**$22,109,323**	**$21,401,908**	**$21,750,214**	**$22,089,143**	**$23,282,876**

* New State agency ** Did not participate in the program *** State agency reduced grant amount for FY10[135]

Citations for ***Appendix G*** can be found in the bibliography on page 156.

Appendix G: Letter of Support From DA+UD

In Support of Urban Agriculture Zones in Kansas City[136]

DAVISON ARCHITECTURE + URBAN DESIGN LLC

What kind of community do you want? That is the first question listed on the Urban Neighborhood Initiative's Community Conversation Guide. If you're familiar with these Eastside neighborhood charrettes then you know what comes next is an ample, round-table discussion with topics ranging from neighbors watching out for neighbors, quality schools and non-school learning opportunities to more jobs at a livable wage in and around the areas where they live. Everybody on the Eastside would like witness the return of businesses to Troost and Prospect. But what is the solution when we seriously consider urban blight, economic abandonment and vacant, neglected lots housing fear, and east-west divisions?

What if we considered the numerous vacant plots peppered throughout the beautiful, historic, Eastside community lots of opportunity? Today they sit empty, covered in weeds, collecting trash and being used for dumpsites. They decrease the value of next-door homes, while providing ignored spaces for vandalism and illegal activity to occur. How do we encourage residents to stay, or invite newcomers to invest into these neglected communities? Beautification isn't enough, and in contrast to open space or parks, which taxpayers generally have to finance, urban agriculture offers a functioning business that pays for itself. The availability of fresh, local produce often brings with it inspiration for start-up food businesses such as bakers, butchers, grocers, canneries and even caterers. Community gardens provide direct participatory learning experiences through active engagement and they can be sited on these dilapidated-home lots, city or community-owned sites, or even on the grounds of educational institutions themselves.

State Rep. Jason Holsman is currently sponsoring HB 1660 which would allow

municipalities to designate blighted areas of a community as Urban Agriculture Zones (UAZs) within which various benefits and incentives would promote agricultural activity by individuals and organizations. The bill defines an UAZ as a zone which contains an organization or person who grows produce or other agricultural products, raises or processes livestock or poultry or sells at a minimum 75% locally grown or raised food. If passed, the bill would provide tax abatement for blighted properties that qualify as UAZs, and provide a 50% discount for hooking up to municipal water sources and wholesale cost for water consumption, as well as other provisions.

Today our food travels farther than ever before, and the benefits of growing food closer to where people live cannot be disputed. Several of our Eastside neighborhoods are even deemed "food deserts" meaning that there are no grocery stores to be found for miles. Along with the loss of healthy food availability is the loss of re-circulated local money, as locally owned business, stocking locally made products and produce, are replaced by stores owned by distant corporations and stocked with products imported from around the globe. Communities have lost control over their food, since it is harder to influence decision-making in distant corporate offices and smaller, mom-and-pop grocers have been driven out of business. As more and more of the services that were once provided by the community are outsourced to other regions and nations, the community retains a declining share of the ultimate profit. The sometimes contested action of reclaiming a public space or economic opportunities provides those involved with a sense of ownership and allows participants to see and feel the consequences of one's actions.

Food is fresher and healthier when we only need to walk next door or down the block to find it. Reduction in carbon emissions and gas consumption occurs when we no longer have to ship produce hundreds of miles to reach a market. Promoting local ecological farming where the use of pesticides, preservatives and packaging are no longer utilized allows for food that is healthier for us and our environment, as well as municipally responsible.

Gardens are not just limited to raised-bed planting in rows on a lot, but a more dense food forest can be created through companion cropping. For example, fruit and nut trees can be layered with food bearing shrubs and bushes while root vegetables are grown below the ground. Greenhouses are another option that can amplify the community garden's growing season while providing potential for a profitable business that will continue to grow as the demand for urban greenery increases. Chicken coups can be easily erected and maintained to provide fresh eggs, minimal poultry and soil fertilization, and adaptive-reuse shelters could house creative potentials from the storage of tools and supplies, to thriving, hands-on community centers. When we begin to focus on neighborhoods from the inside out, working toward self-sufficiency as we provide income opportunities, we create confidence in a community. These social aspects of a community host an opportunity to re-invigorate a neighborhood, providing a sense of place and pride. Sociologists estimate that people have ten times as many conversations at farmers markets versus large supermarkets, and for urban residents accustomed to conducting purchases through bulletproof glass, the farmers market creates a safe, central public place for people to gather, socialize and share.

Community Gardens and Community Supported Agriculture (CSAs) are becoming more common. Municipalities see the opportunity to partner with residents to re-build these communities as a benefit for both current and potential investors. CSAs allow growers and consumers to share the responsibilities of growing food and once healthy, local food is being produced within our communities there follows the ability to set up hospital and institutional by-local policies, school breakfast and hot lunch campaigns and community kitchens. Local farms and gardens can utilize city waste for compost, thereby reducing the burden on city landfills. On average, organic waste accounts for 30% of household waste.

There are numerous other food policy initiatives that City authorities might consider. Participation in federal food stamp programs are continually on the rise and decreased accessibility to affordable, healthy food options is a challenging problem that we face. City planners may consider establishing strategically placed local retail markets - along bus routes or near major business centers, that cater to

low income consumers, while simultaneously providing outlets for farmers, especially those small farmers growing vegetables within the city or along it's edges. The current development proposal for the Troost Corridor houses ample opportunities for community-market friendly infrastructure. Working with communities to design and implement gardens, greenhouses, and community centers would provide important sustainability literacy skills - literacy skills for sustainability in the sense of surviving in the face of challenging conditions as well as an ability to recognize efficient use of valuable resources

DA+UD has studied various methods of creating community gathering spaces via pre-fabricated buildings and re-using cargo containers. Many of the proposed abandoned lots already have utilities, installing a water hose bib that the community could share for gardening would be very easy for a municipality to provide and even encourage. A temporary greenhouse structure can be placed above these buildings, capturing direct sunlight and creating a large flexible space for growing. Large vertical surfaces can then be used for vertical farming. This can be as simple as providing vertical cables for stabilizing tomato vines or as unusual as using guttering stacked on a vertical frame for growing herbs and spices that do not require a deep planting medium. We imagine these community centers and greenhouses serving as neighborhood event spaces or even community kitchens which could house classes on healthy cooking methods and/or gardening techniques for the delicious produce growing within the surrounding areas. These methods provide a venue to encourage healthy eating and innovative thinking while reinforcing the investment and excitement of community gardens and greenhouses into everyday life.

Reclaiming a public space for a group activity offers those involved a sense of ownership, empowerment and pride. By thinking holistically, participants realize their role as active agents of change, and community gardens provide learners with enabling structures by offering access to skills, knowledge and support. They provide a space for active, social participation and can fulfill basic human needs for belonging, community, physical exercise, healthy food and entertainment. The sustainability skills involved in participation in community garden projects reach

far beyond gardening, and include a wide range of abilities, from community-building to ecological design, which can then be transferred into many other spheres of life. The time has come to create shared common spaces for all people, all communities and all generations. By offering small incentives and opportunities to communities plagued by neglect we offer a sustainable model in Kansas City to exemplify what a surviving and thriving heartland city can provide its' current and future citizens. UAZs are a first step in a long process that begins to address the question: what kind of community do you want?

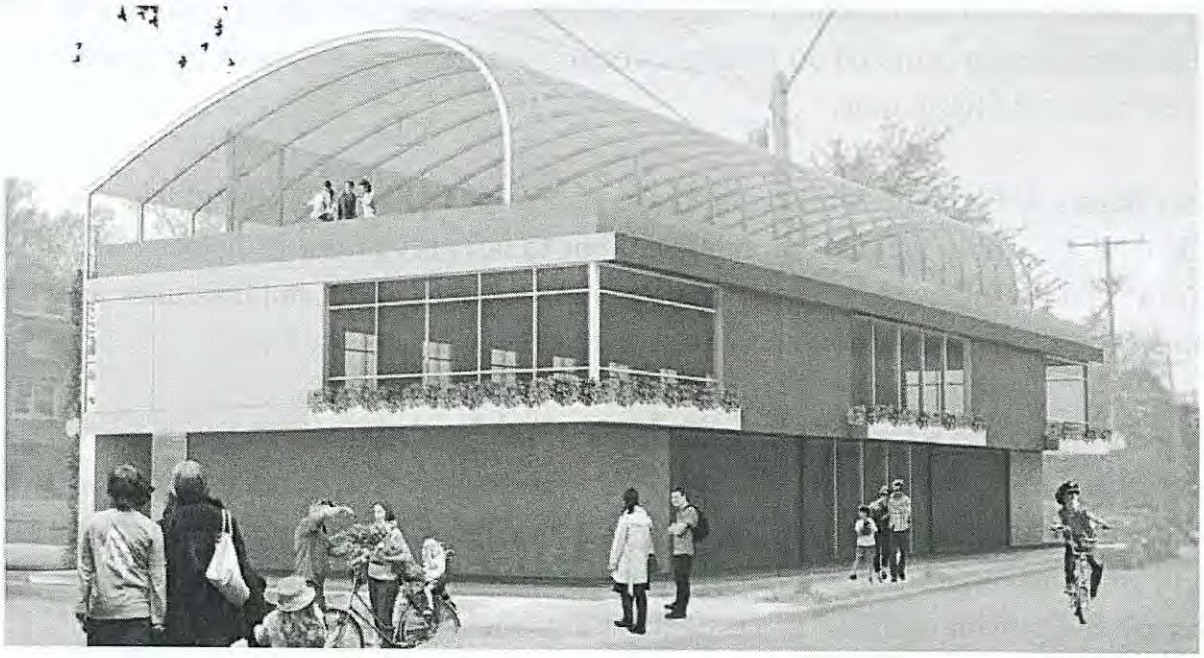
Urban Barn

Project Description

As our food globalizes, the amount of energy it takes to transport food to our homes increases. Many continue to ignore an untapped resource for local food production – the lawn. Our environmentalist client, who also runs a non-for-profit that teaches inner city youth about issues related to sustainability, wanted to create a community garden and demonstration kitchen as an education venue focused on local and organic produce paired with a café/business incubator and flexible indoor/outdoor gathering space. The reinvented lawn uses an approach to planting design that is similar to the natural environment in that it supports a diverse ecology, called permaculture. This method maximizes the variety and amounts of food grown on site while also restoring the health of the area's poor soils. Vertical trellises and a rooftop green house further optimize the area of productive growing space and extend the growing season. The second floor would ideally house residential apartments and/or act as a small green business incubator, whose inhabitants could help tend the gardens.

Project Renderings:

1111



Citations for ***Appendix G*** can be found in the bibliography on page 156.

Appendix H: Letter of Suggestions from Deb Henderson

August 28, 2012
Representative Jason Holsman
201 W. Capital Avenue, Office 105B
Jefferson City, MO 65101

Dear Representative Holsman,

I'm writing to express my support for the Preliminary Report of the Joint Committee on Urban Agriculture and to make recommendations based on my experiences both as the Manager of the Clayton Farmer's Market and as the Lobbyist for successful Farmers Market Legislation in St. Louis County. I applaud the Urban Agriculture Committee's thoroughness and commitment to addressing the needs for safe and economic food distribution, urban food deserts, state jobs and employment centered on food growth and production, as well as the health and well being of Missourians.

In Chapter 4: Farmers' Markets in Missouri, I respectfully recommend that the General Assembly include recommendations to not only promote the economic growth and viability of Missouri's farmers' markets and their small farmers and small food entrepreneurs—but to protect them as well.

It's not enough to simply say farmers markets are good and cite statistics or individual Missouri farmers' markets. Many municipalities, cities and counties in Missouri have cost-prohibited licensing and permitting fee structures; confusing and inconsistent food code applications; and difficult zoning regulations. These inhibit the growth of the same farmers markets that are held up as examples.

Also, some small "brick and mortar" businesses located near a farmer's market and even very large grocery retailers view farmers markets as a threat to their economic

success--even when statistics provided by the USDA, State Departments' of Agriculture, and other organizations indicate otherwise.

Farmers' markets in St. Louis County are not alone in Missouri or the Country in experiencing obstacles, not simply to our growth or expansion, but to being lobbied against by large grocery retailers or other organizations representing larger corporate interests.

It's my hope that the work described here will inspire and prompt the General Assembly into adding more pro-active language to the Farmers' Market section of the Urban Agriculture Report, consequently preventing redundant and costly work in other Missouri Counties. (See pages 7-8 for recommendations.)

CASE IN POINT----WHAT I, DEBORAH HENDERSON & OTHER FARMERS' MARKET MANAGERS AND STAKEHOLDERS ENCOUNTERED IN ST. LOUIS COUNTY, MISSOURI.

PRE-LEGISLATION:

Cost-prohibitive DOH Permitting Fees: Small food entrepreneurs and non-produce Missouri farmers were charged the equivalent of over $900/year or $490/season to cook food on-site or to offer samples of their products 4 hours/week at each STL Co farmers' markets they attended.

By contrast a full service new restaurant is charged only $130/year for 24/7 operation and grocery stores are charged nothing extra beyond their yearly fee, which is based on volume of sales to offer samples. Even the highest DOH fee for $500,000 sales volume is only $451/year---sampling is included.

Farmers' market vendors were charged disproportionately higher fees for the same services than were grocery stores or restaurants, whose fees are based on volume of sales.

Excessive Permitting and Licensing Fees discourage small business growth:
In 2011 when I talked to prospective vendors and farmers about coming to the Clayton Farmer's Market, some said no because of the permitting fees charged by St. Louis County Department of Health (DOH). They could not afford another farmers' market.

During season, others cited poor sales due to not being able to sample their products and not being able to afford the extra $490 if they wanted to offer samples—for each market--on top of the $75 they were already paying in order to simply vend.

Farmer's markets vendors are often not given the same consideration under municipal codes and laws as other food businesses. Sampling food is crucial to making successful sales and cost-prohibitive fees discourage sampling. Vendors were also required to pay duplicate fees at each farmer's market they attended in St. Louis County replicating the fee structure described above.

After one farmer's market vendor was shut down in 2010 after she disagreed with the fees she was charged for sampling, other vendors and farmers were afraid to confront the DOH. They didn't want their livelihoods to be jeopardized. They could not afford to be shut down.

This was one of the reasons I became the representative for Farmers' Market Legislation in St. Louis County. My livelihood was not at risk if I voiced my opinion about STL Co DOH fees.

Disregard of MoRs 150.030: "Farmer not merchant."
Missouri Farmers, who sold beef, pork, poultry, eggs, cheese and other "value-added" farm products, excluding fruits and vegetables, were charged STL CO

DOH permitting fees in violation of State Law. St. Louis City and other Missouri Counties and Cities are still charging some qualified small Mo Farmers fees for permits and licenses, expressly violating state law.

For example, one of our more successful small dairy farmers paid $1000-2000 in permitting fees in St. Louis County alone in order to sell and sample their cheese at STL CO farmers' markets. It's my understanding they are still encountering high fees in St. Louis City.

The St. Louis County Department of Health continued to charge Missouri non-produce farmers' fees for two years after they received communication from the General Counsel of the Missouri Department of Agriculture describing the intent of MoRs 150.030.

Even after the MoDA General Counsel sent another letter (per my request) on June 7 to the St Louis County Council restating the State's position on MoRs 150.030, St. Louis County disregarded State Law and continued charging Missouri farmers fees through August 2012.

It was only after more letters were written documenting the burden these fees placed on our farmers and after public pressure was applied in the newspaper and on radio, that we finally won a concession in September and Mo farmers were no longer charged fees. They were also given the option of refunds.

> MoRs "150.030. Any farmer residing in this state who shall grow or process any article of farm produce or farm products on his farm is hereby authorized and permitted to vend, retail or wholesale said products, free from license, fee or taxation from any county or municipality, in any quantity he may choose, and by doing so shall not be considered a merchant; provided, he does not have a regular stand or place of business away from his farm; and provided further, that any such produce or products shall not be exempted from such health or police regulations as any community may require."

Inconsistent and Confusing Application and Enforcement of Food Codes
St. Louis County is not alone in applying both Food Codes and Permitting Fees, which were originally designed for temporary weekend/weeklong events, full service restaurants, or grocery stores, to farmers' market vendors.

As the numbers of farmers markets grow, counties and municipalities are often scrambling to update their code and zoning laws. In the absence of specific food codes designed for how farmers' markets operate, most counties are applying what's known as "Temporary Food Establishment" or "Seasonal Food Establishment" permits. These leave a lot of room for confusion and misinterpretation.

It should be noted that the actual "Food Safety" and "Sanitation Guidelines" were never disputed by Farmers' Market Stakeholders in St. Louis County. Everyone I worked with was eager to both learn and apply safe food production, storage, transportation, and handling procedures because their business success depended on it

St. Louis County, like most counties in Missouri, is divided into districts. Even though STL DOH designed temporary Farmers' Market Guidelines (updated Jan 2011) and held meetings, when market managers and vendors phoned to verify details different answers were given in each district. One bakery owner complained that, "I got six different answers each time I called the DOH with the same question."

Food Code administration and application was inconsistent from one market to the next. The DOH filing system was not computerized and permits were sometimes delayed up to six weeks. A vendor might be charged $50 in one district and $75 in another for the same permit. A wine vendor at the Webster Groves Farmers Market was not charged fees to sell and sample wine, yet a respected, historic Missouri winery was charged fees to vend at the Clayton Farmer's Market. In 20

years of attending events in STL County, this was the first time they were charged DOH fees.

Farmers' market stakeholders and Environmental Specialists (Inspectors) mostly had good working relationships, but both were hampered in there execution of accurate food code applications because of inadequate or inconsistent interpretations and communications of the Food Code Law by the DOH administration.

THE LEGISLATIVE PROCESS FROM APRIL 2011 TO APRIL 2012

In March 2011, when I, as a new farmer's market manager, heard that other managers, farmers markets and their farmers and vendors had been encountering the same difficulties I was and had not produced satisfying results after two years of meetings with the Department of Health, I contacted the St. Louis County Council in April formally requesting their assistance.

As a result the Health, Justice and Welfare Committee took on the task of hearing our concerns and recommending appropriate legislation. A formal Meeting was held on May 10 and a formal Hearing on June 28 where FM Stakeholders and the DOH expressed opinions and presented evidence.

Problems in the Legislative Process Revealed Opposition from Missouri's Very Large Grocery Retailers

In the beginning Committee Members were very cooperative and expressed enthusiastic agreement with our concerns. However, on July 13, 2012 it was reported in a Post-Dispatch article that two of St. Louis largest family owned grocery retailers filed complaints with the STL Co DOH against farmers' markets receiving adjustments in fees.

After these allegations appeared in the press, I conducted research and compiled data to present (on July 28) to the Health, Justice and Welfare Committee members

to alleviate any concerns they may have had about going forward with the Farmers' Market Legislation.

Here's what I countered with: "Farmers' Markets are not a threat to large grocery stores."

A Farmers' market baker paid over twice as much for only 4 hours/week operation and very low sales than a full service 24/7 grocery store bakery with sales above $500,000

Farmers' market vendors were actually held to higher health code standards than grocery stores operating in St. Louis County. No self-serve sampling is allowed.

There have been no reports filed with STL Co DOH of anyone getting sick from food they purchased or ate at a STL Co Farmers' Market. The same cannot be said for the grocery stores.

The annual retail grocery sales of the stores that filed complaints are over $3 BILLION. These are more than double the annual sales of all the farmers' markets in the whole country (7000+) combined!

Food sales at farmers' markets account for less than 1% of all retail grocery food sales in the country. Even though they receive a lot of press, their sales are comparatively very small.

The small family farms that sell at farmer's markets count their cultivated acreage in 3, 5, and 10-acre increments. Maybe an orchard will go as high as 50 acres. Most if not all of the produce is hand picked or harvested by the family. "Gross sales are below $50,000" per farm. Even though their numbers represent 80% of local food producers they account for less than 10% of gross sales from locally produced food (USDA 2011).

The family farms in Missouri and Illinois, who regularly sell produce to large grocery retailers, count their cultivated acreage in the 100's if not 1000's. Their annual gross sales are above $250,000, some are in the $MILLIONS, and they may employ migrant farm workers. They represent 5% of the farms selling locally produced food" yet they account for 92% of the associated revenue" from local sources (USDA 2011).

There is no comparison and the small farms are not a threat to the large ones and farmers' markets are not a threat to grocery stores.

Even though all these statistics were presented and the Committee indicated they were working, the legislative process seemed to stall out. In October 2011, I drafted a prototype of a "Farmers' Market Food Bill" and presented it to the STL County Council in an effort to get the legislation moving forward.

FAST FORWARD TO JANUARY 2012: FARMERS MARKET LEGISLATION IS FORMALLY INTRODUCED INTO THE LEGISLATIVE PROCESS BY THE DIRECTOR OF STL CO DEPARTMENT OF HEALTH

EVIDENCE OF INFLUENCE ON THE LEGISLATIVE PROCESS AND CONTENT BY OUTSIDE INTERESTS

The draft of the Farmers' Market Bill was sent to grocery stores before it was sent to me (the lobbyist and spokesperson for Farmers' Market Stakeholders) and other market managers. Prior to this, market managers had been kept in the information loop.

I did not receive notice of the Bill's introduction directly from the STL Co DOH or from the County Council. A grocery store representative forwarded it to me.

The first draft of the Bill limited Farmers Markets and their vendors, including Missouri farmers, to operating only 7 months in a calendar year in St Louis County. It also included content that made Farmers' Market Managers liable under the law for each individual vendor's Food Code Compliance. This is an archaic practice which some states abandoned because a whole market would have to be shut down if just one vendor was in violation.

It was only after I executed a large email campaign and the Council was inundated with protests that we won a formal Hearing with the Council of the Whole on Feb 14, 2012.

We were not forwarded updates or amendments to the Bill before each meeting until we protested again—this time about being kept in the dark.

There was embedded language hidden in the original Bill that limited the ability of our farmers and small food entrepreneurs in selling their products. For example, in one place it said that packaged food had to be "factory sealed". None of our vendors make their products in factories and they could have been prevented from selling their products had this wording been left in the Ordinance.

I went to every weekly (except one) Council Meeting from Jan 23 through April 3 speaking on behalf of Farmers' Market Stakeholders, presenting counter proposals, statistics, and other relevant information.

Again I requested the assistance of MoDA General Council and he contacted Council members, this time to explain the economic need for our small Missouri farmers to be allowed to sell their products year-round. As a result Missouri farmers were exempted from the 120-day operation limitation.

The Final Farmer's Market Ordinance was enacted into law in April 2012. It limits the operation of Farmers Markets along with their small food entrepreneurs and

non-Missouri farmers to 120 days of operation in a calendar year. The 120-day limitation is a direct result of the lobbying by Missouri's largest grocery retailers.

THE FIRST FARMERS' MARKET LEGSLATION IN THE STATE OF MISSOURI

We now have a working ordinance that provides fair and appropriate DOH permitting fees based more closely on volume of sales. Vendors now pay $50-$75/market season instead of $490. Fees for attending multiple markets are capped off at $193/year instead of potentially soaring to over $900.

Missouri farmers are exempt from DOH permitting fees and operating limits in St. Louis County. And St. Louis County is now in compliance with State Law, specifically MoRs 150.030.

Food Codes as they apply to farmers markets have been clarified and are more consistently applied and enforced from market to market and vendor to vendor.

St. LOUIS COUNTY FARMERS ' MARKET LEGISLATION SETS PRECIDENT IN THE STATE OF MISSOURI

The reason I went into so much detail to describe what we encountered is because it's imperative to understand what the State's 200 plus farmers' markets, representing hundreds of small farmers and small food entrepreneurs, are up against at the business development level.

Farmer's markets that emphasize local and regional growers and producers offer a unique business ecology system of shared resources and goals. This environment is unsurpassed as an incubator for the state's smallest food based businesses.

Farmer's Markets are the only retail sales outlets for most of these small family owned farms and food businesses. If their economic development is hampered, discouraged and in some cases directly interfered with by cost-prohibitive permitting and licensing fees, inappropriate and out-dated regulations and

ordinances and if they are lobbied against by our very own, local large grocery retailers, then their failure is encouraged rather than their success insured.

RECOMMENDATIONS TO THE MISSOURI GENERAL ASSEMBLY REGARDING THE PRELIMINARY REPORT OF THE URBAN AGRICULTURE ACT

In "Chapter 4: Farmers' Markets" include a paragraph like the following from Colorado's Cottage Food Bill, Section 1. I recommend this at the very least:

"The General Assembly also encourages entities that regulate, affect, or are interested in local food production and related matters to examine ways in which to revise zoning ordinances, building and health codes, and other legal barriers to accommodate and encourage the growing and use of local produce and the production of value-added foods that use local produce."

In "Chapter 4: Farmer's Markets" add content encouraging or regarding the following items:

It's important for Counties to distinguish the difference between "Food Code" requirements for "Food Safety and Sanitation" and the "Permitting Fee Structure" that is applied to the business of executing permits. They are two different issues.

"Food Safety and Sanitation" applies to every food business and most County DOH's just need clarity and simplification in terms of application as they pertain to Farmers Markets.

The "Permitting Fee Structure" is just that—a fee structure. Encourage County DOH's to change their fee structures to fit how farmers' markets operate and to

give the small food vendors the same consideration under law when assessing fees---base them on volume of sales.

Encourage Counties to allow year round Farmer's Market business operation without limits placed on their hours or days of operation. Farmers Markets that set up tents every week are self-limiting in their hours of operation and don't need laws set up to control them. If a farmers' market or a small food business opens a permanent "brick and mortar" establishment, at that time they can be assessed other applicable fees and licenses---not before.

Encourage economically strapped cities and municipalities to look at the long-range economic benefits of their farmers' markets rather than trying to "make a quick buck". They should not try to increase revenue by charging vendors and farmers disproportionate permitting and retail licensing fees

Recommend future guidelines that allow "cottage food" businesses to prepare selected products in their homes. See Colorado's and Ohio's Cottage Food Bills for examples of this.

Encourage Missouri Counties to use the USDA's and the MoDA's definitions of "FARMERS MARKET". If a county, like St. Louis is allowed to change the definition, then they may call a farmer's market a food or retail establishment and apply unnecessary and business dampening regulations---like mechanical refrigeration instead of coolers with ice and costly hand or ware washing stations in every booth, when 1 or a few hand-made ones would suffice for a whole market depending on its size. Grocery stores don't provide washing facilities at every sampling or food prep area in their stores.

Encourage the judicious use of the "Farmer's Market" title. Some large grocery retailers are adopting this name to take advantage of the current trend, when in fact they are not farmers' markets.

Encourage Missouri's large grocery retailers to be kind to their very small and younger siblings in the food industry and not apply predatory tactics to inhibit their burgeoning growth. Farmers' Markets are not a threat to them. There is room for everyone.

Require Missouri counties and municipalities to follow MoRs 150.030 "Farmers are not merchants".

CLOSING STATEMENTS

Even though the increase in numbers of farmers markets nationwide illustrate the advantages described in the Preliminary Report on Urban Agriculture to this growing trend, more needs to be done to support and protect the economic stability, viability and growth of Farmers Markets along with the small farms and small food businesses who participate in them.

It's important that the State encourage the revising of laws, ordinances, and codes in Missouri's Counties and Cities which then in turn encourage the success of this important and unique business ecology system that constitutes Farmers' Markets. The events described above are not just what happened in St. Louis County. These are issues facing Farmers' Markets in all of Missouri's Counties and it stands to reason that other Counties will follow suit with their own legislations. It would save everyone time, money and resources if the General Assembly set the tone by including more pro-active and encouraging language in Chapter 4: Farmers' Markets.

Much is said about small businesses being one of the keys to economic recovery and job growth. The General Assembly has the opportunity to do something very simple to encourage the growth of our smallest entrepreneurs—those who are bringing their business and farming dreams to life and incubating their future successes at Missouri's Farmers' Markets.

I appreciate your interest in this issue as well as the opportunity to provide relevant information regarding the Vending and Farmers Market sections of the Preliminary Report, which may help other farmer's market stakeholders in the state.
I would also like to thank you for the consideration and work you put into the drafting of the Preliminary Report on Urban Agriculture. I think it is a very important piece of legislation and I encourage its passage. If legislation could be described as truly caring for the people it affected, then the Urban Agriculture Act would fit that description.

Best regards,
Deborah Henderson, ND
Market Manager 314.913.6632
Clayton Farmer's Market l 8282 Forsyth Blvd. l St. Louis, Mo. 63105

C/c Representatives Newman, Hough, Loehner and Wyatt; Senators Lembke, Chappelle-Nadal, Justus, and Kraus; Senator Claire McCaskill; Missouri Department of Agriculture and St. Louis County Farmers' Market Stakeholders

Bibliography

Definitions

[1] Martin, Mike. "Cargill initiates voluntary ground turkey recall; public health

concern key to decision; ground turkey production suspended at Arkansas plant." Cargill, Inc. http://www.cargill.com/news/releases/2011/NA3047807.jsp (accessed July 17, 2012).

[2] Encyclopedia Britannica Online. "Aquaculture." Encyclopedia Britannica, Inc. http://www.britannica.com/EBchecked/topic/31026/aquaculture (accessed July 17, 2012).

[3] Nelson and Pade. "Aquaponics Overview." Nelson and Pade, Inc. http://aquaponics.com/page/aquaponics-overview (accessed July 17, 2012).

[4] Environmental Protection Agency. "Brownfields and Land Revitalization: Brownfields Definition." United States Environmental Protection Agency. http://epa.gov/brownfields/overview/glossary.htm (accessed July 17, 2012).

[5] An Act Related to Food (2011). Texas Enrolled Acts, (2012). http://www.legis.state.tx.us/BillLookup/Text.aspx?LegSess=82R&Bill=SB81 (accessed July 17, 2012).

[6] Michigan Food Law of 2000, (2000). Michigan Enrolled Acts, (2012). http://www.legislature.mi.gov/%28S%28qiiyj555rf5nsc555eyxvh45%29%29/mileg.aspx?page=GetObject&objectname=mcl-act-92-of-2000 (accessed July 17, 2012).

[7] Michigan Department of Agriculture. *Frequently Asked Questions: Cottage Foods*. Lansing, MI (2010).

[8] DeMuth, Suzanne. "Defining Community Supported Agriculture." United States Department of Agriculture. http://www.nal.usda.gov/afsic/pubs/csa/csadef.shtml (accessed July 17, 2012).

[9]United States Department of Agriculture Agricultural Marketing Service. "Farmers Markets and Local Food Marketing." United States Department of Agriculture, 2010. http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateL&navID=LearnAboutCSAsLinkWholesaleAndFarmersMarkets&rightNav1=LearnAboutCSAsLinkWholesaleAndFarmersMarkets&topNav=&leftNav=WholesaleandFarmersmarkets&page=WFMCommunitySupportedAgriculture&resultType=&acct=wdmgeninfo (accessed July 17, 2012).

[10] Perlman, Howard. "The Water Cycle: Evapotranspiration." United States Department of the Interior United States Geological Survey. Last modified March 9, 2012. http://ga.water.usgs.gov/edu/watercycleevapotranspiration.html (accessed July 23, 2012).

[11] United States Department of Agriculture. *WIC Farmers' Market Nutrition Program*. 2012.

[12] Ver Ploeg, Michele, Vince Breneman, Tracey Farrigan, Karen Hamrick, David Hopkins, Philip Kaufman, Biing-Hwan Lin, Mark Nord, Travis Smith, Ryan Williams, Kelly Kinnison, Carol Olander, Anita Singh, and Elizabeth Tuckermanty. "Access to Affordable and Nutritious Food—Measuring and Understanding Food Deserts and Their Consequences: Report to Congress." *United States Department of Agriculture: Economic Research Service* (2009). http://www.ers.usda.gov/publications/ap-administrative-publication/ap-036.aspx (accessed July 17, 2012).

[13] Economic Research Service. "Food Desert Locator." United States Department of Agriculture. http://www.ers.usda.gov/data/fooddesert/fooddesert.html (accessed July 17, 2012).

[14] Coleman-Jensen, Alisha, Margaret Andrews, Steven Carlson, and Mark Nord. *Household Food Security in the United States in 2010.* United States Department of Agriculture Economic Research Service. 2011.

[15] Praxton, Angela. "The Food Miles Report: The Dangers of Long-Distance Food Transport." *Sustainable Agriculture, Food, and Environment Alliance* (1994).

[16]Food and Drug Administration Center for Food Safety and Applied Nutrition. *Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* (1998), U.S. Department of Health and Human Services Food and Drug Administration (1998). http://www.fda.gov/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/ucm064574.htm (accessed July 18, 2012).

[17] Kalaitzandonakes, Nicholas. "Agrobiotechnology and Competitiveness." *American Journal of Agricultural Economics* 82, 5 (2000): 1224-33.

[18] World Health Organization. "Food Safety: 20 questions on genetically modified foods." World Health Organization. http://www.who.int/foodsafety/publications/biotech/20questions/en/ (accessed July 17, 2012).
[19] Monsanto Canada Inc v. Schmeiser, Bd., 2004 SCC 34, [2004] 1 S.C.R. 902. http://scc.lexum.org/en/2004/2004scc34/2004scc34.html (date accessed 07/17/2012).
[20]http://www.fda.gov/downloads/Food/GuidanceComplianceRegulatoryInformation/GuidanceDocuments/ProduceandPlanProducts/UCM169112.pdf
[21] Department of Horticulture. "Cornell High Tunnels: high tunnel topics." Cornell University College of Agriculture and Life Sciences. http://www.hort.cornell.edu/hightunnel/ (accessed July 17, 2012).
[22] Encyclopedia Britannica Online. "Hydroponics." Encyclopedia Britannica, Inc. http://www.britannica.com/EBchecked/topic/279000/hydroponics (accessed July 17, 2012).
[23] English, Jean. "Extend the Growing Season with Coleman's Double-Covered Low Tunnels." Maine Organic Farmers and Gardeners Association. http://www.mofga.org/Default.aspx?tabid=844 (accessed July 17, 2012).
[24]University of Missouri Extension. "Missouri Master Gardener Program Policies and Procedures." University of Missouri. http://extension.missouri.edu/p/MG1 (accessed July 17, 2012).
[25]M. Agrawal, Bell, Marshall, Rajput, and Singh. "Effect of air pollution on peri-urban agriculture: a case study." *Environmental Pollution* 126, 3 (2003): 323-29.
[26] Shaw Park Nature Preserve. *A Homeowner's Guide for Missouri: Chapter Two, Rain Gardening and Storm-water Management*. Missouri Botanical Garden. Gray Summit, MO (2006).
[27]Agricultural Marketing Service. "Commodity Areas: Definition of Specialty Crops." United States Department of Agriculture. http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateJ&page=SCBGPDefinitions (accessed July 18, 2012).
[28] "Specialty Crop Block Grant Recipients for Fiscal Year 2012." Missouri Department of Agriculture. http://mda.mo.gov/abd/financial/specialtycroprecipients2012.php (accessed July 18, 2012).
[29] Food & Nutrition Service. "Senior Farmers' Market Nutrition Program Grant Levels FY 2008-2012." Food & Nutrition Service United States Department of Agriculture. http://www.fns.usda.gov/wic/seniorfmnp/SFMNPgrantlevels.htm (accessed July 18, 2012).
[30] Food & Nutrition Service. "SNAP Retailer Locator." United States Department of Agriculture. http://www.snapretailerlocator.com/ (accessed July 18, 2012).
[31] Sundermeier, Alan, Lal, and Reeder. "Soil Carbon Sequestration—Fundamentals." *The Ohio State University Extension Factsheet*, Columbus, OH.
[32] St. Clair, Charles. "The History and Philosophy of Extension." University of Missouri Extension. Last modified September 22, 2012. http://extension.missouri.edu/extcouncil/Impacts/9.htm (accessed July 23, 2012).
[33] ." Food & Nutrition Service. "Women, Infants, and Children." United States Department of Agriculture. http://www.fns.usda.gov/wic/ (accessed July 18th, 2012).
[34] Oliveira, Victor, Ghelfi, Olmsted, and Racine. *The WIC Program: Background, Trends, and Issues.* Food Assistance and Nutrition Research Report No. FANRR-27. 2002. http://www.ers.usda.gov/publications/fanrr-food-assistance-nutrition-research-program/fanrr27.aspx (accessed July 18, 2012).

Chapter One: Food Hubs in Food Deserts

[35] Coleman-Jensen, Alisha, Margaret Andrews, Steven Carlson, and Mark Nord. "Household Food Security in the United States in 2010." *United States Department of Agriculture Economic Research Service* (2011).
[36] Jordan Dawdy, Foulkes, Heflin, Hermsen, Lucht, Raedeke, Rikoon. "Missouri Hunger Atlas 2010." *Interdisciplinary Center for Food Security, University of Missouri* (2010).
[37] Dawdy et al. "Missouri Hunger Atlas 2010."

[38] Mabli, James, Cohen, Potter, and Zhao. "Hunger in America 2010: Missouri State Report." *Mathematica Policy Research* (2010).
[39] Coleman-Jensen et al. "Household Food Security in the United States in 2010."
[40] Economic Research Service. "Food Desert Locator." (accessed 07/12/2012).
[41] Dor, Avi, Ferguson, Langwith, and Tan. *A Heavy Burden: The Individual Costs of Being Overweight and Obese in the United States.* George Washington University School of Public Health and Health Services Department of Health Policy. 2010.
[42] Dawdy et al. "Missouri Hunger Atlas 2010," 7.
[43] Kuo, F. and W. Sullivan. "Environment and Crime in the Inner City: Does Vegetation Reduce Crime?" *Environment and Behavior* 33, 3 (2001):343-67.
[44] Voicu, I. and V. Been. "The Effect of Community Gardens on Property Values." *Law and Economics Research Paper Series.* Working Paper No. 06-09. 2006.
[45] Meter, Ken. *Local Food As Economic Development.* Crossroads Resource Center Minneapolis, MN. 2008.
[46]Ordinance 100299. City of Kansas City, MO. § 88.312 (passed June 10, 2010). http://cityclerk.kcmo.org/liveweb/Documents/Document.aspx?q=gwQ25M6kfLBpQAH2KArtCVQTuNiMyZkVhPHNtnlPCMYJ%2B2FvKs5bOtLbpVG3Tq5a (accessed 07/18/2012).

Chapter Two: Community Gardens
[47] Abi-Nader, Jeanette, Buckley, Dunnigan, and Markley. *Growing Communities Curriculum: Community Building and Organizational Development through Community Gardening.* American Community Gardening Association (2001). communitygarden.org/acga-store.php (accessed July 19, 2012).
[48]Tranel, Mark and Larry Handlin. "Planting Seeds; Growing Communities." *University of Missouri-St. Louis Public Policy Research Center.* 2003. http://www.gatewaygreening.org/about-us/whitmire-study.html (accessed July 19, 2012).
[49]Tranel and Handlin, 2003.

Chapter Three: Land Banking
[50] Alexander, Frank. "Land Banks and Land Banking." *Center for Community Progress* (2011).
[51] Alexander, "Land Banks and Land Banking," 15.
[52] Alexander, "Land Banks and Land Banking," 15.
[53] Alexander, "Land Banks and Land Banking," 15.
[54] Alexander, "Land Banks and Land Banking," 48-9.
[55] Alexander, "Land Banks and Land Banking," 27.
[56] Crumbliss, Adam D. "House Bill No. 1659: 96th General Assembly." Missouri General Assembly (2012). http://www.house.mo.gov/billtracking/bills121/biltxt/intro/HB1659I.HTM (accessed July 19, 2012).
[57] Governor Jay Nixon. "Kansas City Land Bank to be established to rehab and resell blighted property." Office of Missouri Governor Jay Nixon. Last modified July 9, 2012. http://governor.mo.gov/newsroom/2012/Gov_Nixon_signs_House_Bill_1659_in_Kansas_City (accessed July 18, 2012).
[58] Kansas City Star. "Rep. Noel Torpey's land bank legislation soon to become law." *The Kansas City Star Press Release Central*, accessed July 18, 2012, http://pressreleases.kcstar.com/release/messages/19315.
[59] Hancock, Jason. "Nixon signs Kansas City land bank legislation." *The Kansas City Star*, July 9, 2012, accessed July 18, 2012, http://www.kansascity.com/2012/07/09/3697814/nixon-signs-kansas-city-land-bank.html.

[60] "Summary of the Truly Agreed Version of the Bill: SCS HCS HB 1659 & 1116—Land Bank Agency in Kansas City." Missouri House of Representatives. Last modified May 22, 2012. http://www.house.mo.gov/content.aspx?info=/bills121/bilsum/truly/sHB1659T.htm (accessed July 18, 2012).

Chapter Four: Missouri Farmers' Markets

[61] AgriMissouri. "Farmers Market." Missouri Department of Agriculture. http://agrimissouri.com/mo-grown/groresults.php?Tier1=Farmers+Market&Run=view+all+results (accessed July 18, 2012).

Chapter Five: WIC in Missouri

[62] Oliveira et al. *The WIC Program: Background, Trends, and Issues,* 2002.

[63] *Child Nutrition Act of 1966,* U.S. Congress. Pub. L. No. 111-296. 124 STAT. 3183. (amended Dec. 13, 2010).

[64] "Women, Infants, and Children." United States Department of Agriculture.

[65] "WIC Income Guidelines." Missouri Department of Health & Senior Services. Last modified April, 2012. http://health.mo.gov/living/families/wic/eligibility_income.php (accessed July 18, 2012).

Chapter Six: Good Agricultural Practices

[66] Food and Drug Administration Center for Food Safety and Applied Nutrition. *Guidance for Industry: Guide to Minimize Microbial Food Safety Hazards for Fresh Fruits and Vegetables* (1998),

Chapter Seven: Composting

[67] Schlesinger, William H. "Carbon and Agriculture: Carbon Sequestration in Soils." *Science* 284, 5423 (June 25, 1999):2095.

[68] Bradford Research & Extension Center. "Composting in a Zero Carbon Footprint Production System: Executive Summary." University of Missouri College of Agriculture, Food and Natural Resources. Last modified 2012. http://aes.missouri.edu/bradford/research/compost/index.php (accessed December 22, 2011).

[69] Bradford Research & Extension Center. "Composting in a Zero Carbon Footprint Production System: Executive Summary."

[70] Bradford Research & Extension Center. "Composting in a Zero Carbon Footprint Production System: Executive Summary."

[71] Bradford Research & Extension Center. "Composting in a Zero Carbon Footprint Production System: Executive Summary."

[72] Tim Reinbott (Superintendent of Bradford Research Center) in discussion with United States Composting Council, December 14, 2012.

Chapter Eight: Aquaponics

[73] Aquaponics Journal. "About Aquaponics Journal." Nelson and Pade, Inc. Last modified 2012. http://aquaponicsjournal.com/about-aquaponics-journal.php (accessed July 19, 2012).

[74]O'Connor, Colleen and Paul Tamburello. "Denver's aquaponics project aims to turn 'food desert' into an oasis of health: fig. A better way to grow." *The Denver Post* and Urban Organics, Growing Power Inc., October 18, 2009, accessed July 12, 2012, http://www.denverpost.com/ci_13586527.

Chapter Nine: Vertical Farming

[75] Despommier, Dickson. "Introduction." The Vertical Farm. http://www.verticalfarm.com/more (accessed July 19, 2012).

[76] Despommier, Dickson. "Advantages of Vertical Farming." http://www.verticalfarm.com/more (accessed July 19, 2012).

Chapter Ten: Agricultural Land Trusts

[77] "About 'The Plant'." The Plant. Last modified 2012. http://www.plantchicago.com/about/ (accessed July 19, 2012).

[78] "Threatened Farmland: What's Happening to our Farmland?" American Farmland Trust. Last modified 2012. http://www.farmland.org/resources/fote/default.asp (accessed July 17, 2012).

[79] "Farmland Protection." American Farmland Trust. Last modified 2012. http://www.farmland.org/programs/protection (accessed July 17, 2012).

[80] Bob Wagner (Senior Policy and Program Advisor) in discussion with editor, July 17, 2012.

[81] "Missouri Statistics Sheet." Farmland Information Center. Last modified 2007. http://www.farmlandinfo.org/agricultural_statistics/index.cfm?function=statistics_view&stateID=MO (accessed July 17, 2012).

Chapter Twelve: Successful Examples from Around the State

[82] "Food is Good." Columbia Center for Urban Agriculture. http://columbiaurbanag.org/ (accessed July 19, 2012).

[83] "Cultivate Kansas City." Cultivate KC: The Center for Urban Agriculture. Last modified 2012. http://www.cultivatekc.org/ (accessed July 19, 2012).

[84] Gateway Greening. http://www.gatewaygreening.org/ (accessed July 19, 2012).

[85] Greater Kansas City Food Policy Coalition. http://kcfoodpolicy.ning.com/ (accessed July 1, 2012).

[86] "Innovative Small Farmers Outreach Program." Lincoln University. Last modified 2009. http://www.lincolnu.edu/web/programs-and-projects/innovative-small-farmers-outreach-program (accessed July 19, 2012).

[87] "Beans&Greens Makes Local Produce More Accessible and Affordable." Beans&Greens. http://www.beansandgreens.org/ (accessed July 19, 2012).

[88] "Welcome." Menorah Legacy Foundation. Last modified 2010. http://www.menorahlegacy.org/ (accessed July 19, 2012).

[89] "About MoCAN." Missouri Council for Activity & Nutrition. http://extension.missouri.edu/mocan/ (accessed July 19, 2012).

[90] "About the Missouri Foundation for Health." Missouri Foundation for Health. Last modified 2012. http://www.mffh.org/content/7/about-mfh.aspx (accessed July 19, 2012).

[91] "The PedNet Coalition: Building a Healthy and Active Community." Pedestrian & Pedaling Network. Last modified 2008. http://www.pednet.org/ (accessed July 19, 2012).

[92] "Who We Are." Springfield Urban Agriculture Coalition. Last modified 2012. http://www.springfielduac.org/(accessed July 19, 2012).

[93] "St. Patrick Center: Building Permanent, Positive Change." St. Patrick Center. Last modified 2010. http://www.stpatrickcenter.org/ (accessed July 19, 2012).

[94] "City Seeds Urban Farm." Gateway Greening. Last modified July 3, 2012. http://www.gatewaygreening.org/our-programs/city-seeds-urban-farm/ (accessed July 19, 2012).

[95] "Welcome to Ozark CRAFT." OzarksCRAFT. Last modified January 15, 2012. http://ozarkscraft.wordpress.com/ (accessed July 19, 2012).

[96] "About." EarthDance. Last modified 2012. http://www.earthdancefarms.org/ (accessed July 19, 2012).

[97] "St. Louis Loftworks." LoftWorks. Last modified 2009. http://www.loftworks-stl.com/default.htm (accessed July 19, 2012).

[98] "Old North Grocery." Old North Grocery Co-Op. http://oldnorthgrocery.com/ (accessed July 19, 2012).
[99] "About." The Urban Farming Guys. Last modified 2012. http://theurbanfarmingguys.com/ (accessed July 19, 2012).
[100] Yellowtree Farm. http://www.yellowtreefarm.com/ (accessed July 19, 2012).
[101] "Home." Yours Market. http://www.yoursmarket.org/ (accessed July 19, 2012).

Chapter Thirteen
[102] Missouri House of Representatives. "Summary of the Introduced Bill: HB 1660—Urban Agriculture Zones." Last modified February 16, 2012. http://www.house.mo.gov/billsummary.aspx?bill=HB1660&year=2012&code=R (accessed July 23, 2012).
[103] Brooks, Nora, Jerardo, and Regmi. *U.S. Food Import Patterns, 1998-2007.* Economic Research Service United States Department of Agriculture Report No. FAU-124. 2009.
[104] "Children at Risk of Hunger in Every County." Feeding America. Last modified 2012. http://feedingamerica.org/hunger-in-america/hunger-studies/map-the-meal-gap.aspx (accessed July 19, 2012).
[105] "Children at Risk of Hunger in Every County." (accessed July 19, 2012).
[106] "City Seeds Urban Farm." Gateway Greening. (accessed July 19, 2012).
[107] Columbia Center for Urban Agriculture. (accessed July 19, 2012).
[108] Cultivate KC. (accessed July 19, 2012).
[109] Springfield Urban Agriculture Coalition. "Who We Are." Last modified 2012. http://www.springfielduac.org/ (accessed July 23, 2012).
[110] Edmiston, Kelly. "Vacant and Abandoned Properties in Kansas City, MO: Pervasiveness and Cost." (Presentation March 21, 2011). Federal Reserve Bank of Kansas City. http://www.kc.frb.org/publicat/speeches/2011-edmiston-kc-housinground-3-21.pdf (accessed July 19, 2012).

Appendix B
[111] Hester, Randolph. *Design for Ecological Democracy.* (MIT Press, 2010): 344.
[112] Four Seasons Tools. "We Build Organic, Four-Season Farms." Small Farm Tools. Last modified 2012. http://www.smallfarmtools.com/ (accessed July 19, 2012).
[113] IBM's Smarter Cities Challenge. *Milwaukee: Summary Report.* IBM Corporation. 2011. http://smartercitieschallenge.org/executive_reports/SmarterCities_Milwaukee.pdf (accessed July 19, 2012).
[114] Herzog, K. "Milwaukee recognized for urban farms, aquaponics." *Milwaukee Sentinel,* September 19, 2011, accessed July 19, 2012, http://www.jsonline.com/news/milwaukee/130096388.html.
[115] Global Compact Cities Programme. "Milwaukee." UN Global Compact Cities Programme. http://citiespro.pmhclients.com/index.php/news/city_of_milwaukee_set_to_be_our_newest member_city/ (accessed July 19, 2012).
[116] LaPierre, Yves. "Urban Agriculture in Milwaukee." City of Milwaukee Department of City Development. http://city.milwaukee.gov/Urban-Agriculture.htm (accessed July 19, 2012).
[117] Scarlet, Rick. "Springfieldcityfarm's Blog." Springfield City Farm. Last modified May 11, 2012. http://springfieldcityfarm.wordpress.com/ (accessed July 19, 2012).
[118] Weinsten, Deborah. "Urban gardeners farm plots beneath roar of passing jets." CNN, August 10, 2009, accessed July 19, 2012, http://www.cnn.com/2009/LIVING/08/10/gardenboys.irpt/index.html.
[119] Draper, Bill. "USDA Announces $308M in aid to states; Missouri to receive about $49 million." *Southeast Missourian*, January 18, 2012, accessed January 26, 2012, http://www.semissourian.com/story/1805687.html.
[120] The Plant, accessed July 19, 2012.
[121] Crittenden, Brent. "Farmworks." UIC, November 21, 2010, accessed July 19, 2012, http://uicstl.com/?p=165.

[122] St. Patrick's Center, accessed July 19, 2012.
[123] The Vertical Farm, accessed July 19, 2012.
[124] Novus International. Last modified July 16, 2012. http://www.novusint.com/ (accessed July 19, 2012).
[125] Novus International, accessed July 19, 2012.
[126] Gateway Greening, accessed July 19, 2012.
[127] Loftworks St. Louis, accessed July 19, 2012.
[128] Grand Center. http://www.grandcenter.org/ (accessed July 19, 2012).
[129] "Sweet Water Organics." Sweet Water Organics, Inc. Last modified 2012. http://sweetwater-organic.com/ (accessed July 19, 2012).
[130] Sweet Water Organics, Inc, accessed July 19, 2012.
[131] AquaRanch. "Home." AquaRanch Industries. Last modified 2012. http://www.aquaranch.com/ (accessed July 19, 2012).

Appendix C
[132] HB 1660. Missouri General Assembly, 96th General Assembly, 2nd Regular Session. § 262.815. (http://www.house.mo.gov/billtracking/bills121/biltxt/intro/HB1660I.htm (accessed July 23, 2012).

Appendix D
[133] CCS SS HB 458, Missouri General Assembly, 96th General Assembly, 1st Regular Session. § 262.900. (signed into law July 11, 2011). http://house.mo.gov/billtracking/bills111/biltxt/truly/HB0458T.htm (accessed July 23, 2012).

Appendix E
[134] Office of Representative Jason Holsman. *Missouri General Assembly Passes Kansas City Land Bank Legislation*. Press release. May 17, 2012. Accessed via email July 8, 2012.

Appendix F
[135] Food & Nutrition Service. "WIC Farmers' Market Nutrition Program: Grant Levels by State FY 2008-2012." United States Department of Agriculture. Last modified May 4, 2012. http://www.fns.usda.gov/wic/FMNP/FMNPgrantlevels.htm (accessed July 19, 2012).

Appendix G
[136] Warman, Ryan. *In support of Urban Agriculture Zones in Kansas City*. Letter to Joint Committee on Urban Agriculture. Davison Architecture + Urban Design, LLC. June 1, 2012.