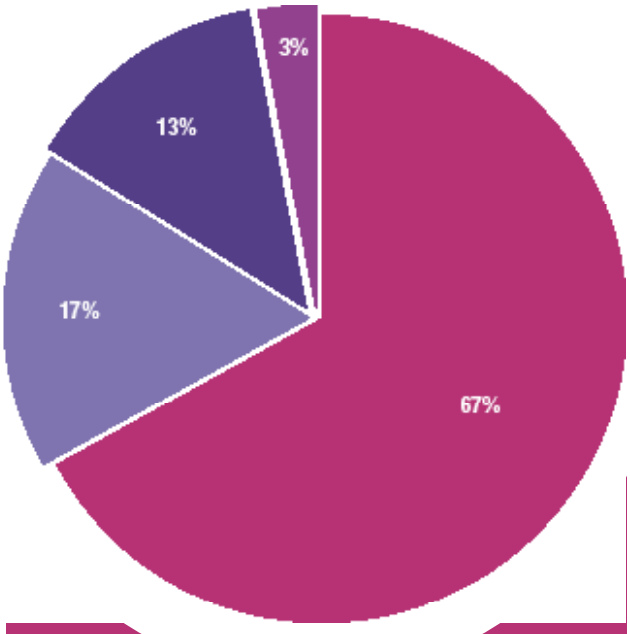
CHAPTER.4

Land

Land Acres & Type of Land

The land found in the Saint Louis Regional Foodshed includes farmland, pastureland, woodland, and farmsteads. The total land area of the Saint Louis Regional Foodshed is 21,372,876.8 acres[1] and approximately 64% (13,710,166 acres) of which is considered "land in farms."[2]

"Land in farms," refers to several types of land, including cropland, woodland, and pastureland. As defined by the 2007 USDA Agriculture Census, "land in farms consists primarily of agricultural land used for crops, pasture, or grazing. It also includes woodland and wasteland not actually under cultivation or used for pasture or grazing, provided it was part of the farm operator's total operation."[3] However, if a farm contains woodland or wasteland acreage used for nonagricultural purposes, that acreage is not included in the individual reports of "land in farms."[4] Therefore, at the county level, total acreage reported for all types of land found on farm property (hereinafter "farmland) is greater than the reported "land in farms" because "land in farms" excludes farmland used for nonagricultural purposes. As a result, the "land in farms" for the Saint Louis Regional Foodshed (13,710,166 acres) is significantly less than the total farmland calculated for the region in 2007. The Saint Louis Regional Foodshed has approximately 14,699,865 acres in farmland; this land includes "cropland" (9,863,989 acres); "pastureland" (2,427,737 acres), "woodland" (1,903,607 acres); and "farmsteads, buildings, facilities, roads, and wastelands" (504,532 acres) (See Graph 4-1).[5]



GRAPH. 4-1
FARMLAND IN THE SAINT LOUIS REGIONAL FOODSHED, 2007

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1 U.S. Census Bureau, *Population, Housing Units, Area, and Density: 2010 - County -- Census Tract*, Am. Fact Finder, http://factfinder2.census.gov/faces/nav/jsf/pages/index.xhtml (follow "Geographies" hyperlink, select "County" geographic type from drop down menu, select "Missouri" from state drop down menu, select Foodshed counties in Missouri, and select "Add to Your Selections" button; then select "Illinois" from state drop down menu, select Foodshed counties in Illinois, and select "Add to Your Selections" button; close the "Select Geographies" option menu; then type "land" in search bar and select "Population, Housing Units, Area, and Density: 2010 - County -- Census Tract" from the "2010 SF1 100% Data" Dataset in the search results) (last visited Aug. 13, 2012).

2 *See* Nat'l Agric. Statistics Serv., U.S. Dep't of Agric., *2007 Census of Agriculture - Missouri - State and County Data* 359-73 (2009) http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Missouri/mov1.pdf [hereinafter *2007 Census of Agriculture - Missouri*]; ; Nat'l Agric. Statistics Serv., U.S. Dep't of Agric., *2007 Census of Agriculture - Illinois - State and County Data* 347-58 (2009) http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_2_County_Level/Illinois/ilv1.pdf [hereinafter *2007 Census of Agriculture - Illinois*]. 2007 .

3 U.S. Dep't of Agric., *Appendix B. General Explanation and Census of Agriculture Report Form*, *in* 2007 Census of Agriculture B-14 (2009) http://www.agcensus.usda.gov/Publications/2007/Full_Report/Volume_1,_Chapter_1_US/usappxb.pdf.

4 *Id.*

5 *2007 Census of Agriculture - Missouri*, *supra* note 2 at 359-88; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-71.

The Saint Louis Regional Foodshed's cropland makes up 67% of the region's farmland, 64% of the region's land in farms, and 46% of the entire region. Corn, soybean and wheat are the region's most produced commodities and they are grown as monocultures on fields typically larger than 100 acres. "The dominance of agricultural monocultures is especially prevalent in the [Upper Mississippi River (UMR)] Basin,"[6] consisting of Minnesota, Wisconsin, Iowa, Illinois, and Missouri,[7] "with about 60 percent of the land in agriculture primarily growing two crops, corn and soybeans, neither of which is primarily for direct human consumption."[8] Much of the 9.86 million acres of the cropland in the Saint Louis Regional Foodshed does not produce crops for direct human consumption, as we will see in subsequent chapters. Monoculture crop production requires "inputs" to sustain large production, including pesticides to prevent destruction of single crop yields and fertilizers to ensure large yields of commodity crops. "The goal [of monocultures] is to increase yield (such as bushels per acre) and decrease costs of production, usually by exploiting economies of scale."[9]

Industrial farming practices on thousands of acres allow for high productivity in the short-term. However, use of industrial machinery, over-application of pesticide and fertilizer, and the conversion of perennial vegetated land near waterways to cropland have effects on the environment. "Although pesticides have many advantages, there are . . . shortcomings in side-effects such as the emergence of pesticide-resistant strains of pest organisms, the disturbance of agro-ecosystems, and pollution of the environment."[10] Degradation of soil and water resources, the most valuable yet undervalued resources for agriculture, is linked to increased fertilizer application and machinery use on agricultural lands.[11]

Industrial farming practices remove nutrients from the soil and degrade soil health and subsequently require use of chemical or manure fertilizer to maintain desired production levels. Poor soil conservation practices and over-application of fertilizers coupled with inadequate vegetation buffers between agricultural land and waterbodies often result in water contamination by sediment, chemicals and fertilizers. Water from rainfall and wind detaches bare soil, fertilizers and pesticides, and carry them to nearby lakes, ponds, streams, and rivers where they can degrade water quality. Farm related pollutants can cause fish kills, algae blooms, and hypoxic zones and they can increase water treatment costs if herbicides, pesticides and nitrates reach high levels in drinking water sources.

Industrialized agriculture encourages placing every acre of farmland into production, which leads many farmers to remove vegetation near rivers and streams (also known as riparian buffer zones) and converting the land into cropland. The removal of riparian vegetation leaves rivers and streams vulnerable to soil erosion and fertilizer and manure runoff. Less intensive agricultural practices that work with the surrounding ecosystem and topography better protects soil nutrients by leaving deep rooted plants near waterways and along steep slops, helping to keep soil intact and avoiding erosion risks if the land was intensively cropped. Riparian vegetation helps reduce the amount of soil that becomes susceptible to wind and water erosion. Maintaining vegetation along waterbodies secures nature's barrier against pollution. Vegetated buffers also boost infiltration of water allowing it to be absorbed into underground aquifers, providing additional flood storage during wet years, and additional water storage to insure against drought.

Vegetation buffers slow rainwater and wind's ability to reach waterbodies, subsequently slowing transport of any accompanying nutrient and soil.

Shifting away from agricultural practices that prioritize low-diversity cropping systems and mass production of staple commodities will reduce the need to interfere with nutrients and vegetation in landscapes near waterbodies.

Land Capability, Soil Quality, and Productivity

In order for agricultural land to be highly productive, its soil must provide crops with proper nutrients. Much of the land in the United States is considered unsuitable for farming. The Saint Louis Regional Foodshed is fortunate to have high quality soils.

The U.S. has numerous soil types across its landscape, which are distinguished based on several properties including texture, structure, depth to bedrock, available water capacity, and soil capability.[12] While some soil types are better for crop production than others, the circumstances in which they are found determine the land's ability to sustain agriculture.

Land capability classes vary based on multiple factors. These include the suitability of the land for "field crops and pasture," suitability for diverse species growth, and any need for conservation practices.[13]

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6 Brad Walker, Mo. Coalition for the Env't, *Our Future? A Vision for Land, Water, and Economic Ethic in the Upper Mississippi River Basin* 20 (Kathleen L. Smith et al. eds., 2012) http://www.moenviron.org/wp-content/uploads/2012/05/MCE-Our-Future-UMR-Report-5-22-12.pdf.

7 *See* Upper Mississippi River Basin Association (Aug. 10, 2012), http://www.umrba.org/.

8 Walker, *supra* note 6.

9 *Industrial Agriculture: Features and Policy*, Union of Concerned Scientists (May 17, 2007), http://www.ucsusa.org/food_and_agriculture/science_and_impacts/impacts_industrial_agriculture/industrial-agriculture-features.html#Monoculture.

10 M. G. Wolman & F. G. A. Fournier, *Chapter 1: Introduction to Land Transformation in Agriculture*, *in* Land Transformation in Agriculture, 1, 5, (M. G. Wolman & F. G. A. Fournier eds., 1987) http://globalecology.stanford.edu/SCOPE/SCOPE_32/SCOPE_32_1.1_Chapter1_3-7.pdf.

11 *See id.*; Martin C. Heller & Gregory A. Keoleian, The Center for Sustainable Systems, *Life Cycle-Based Sustainability Indicators for Assessment of the U.S. Food System* 21 (2000) http://css.snre.umich.edu/css_doc/CSS00-04.pdf.

12 Natural Res. Conservation Serv., U.S. Dep't of Agric., *From the Ground Down: An Introduction to Missouri Soil Surveys* 10, 11, 12 (2007) https://prod.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1161968.pdf [hereinafter *From the Ground Down*].

13 *Id.* at 14; *see also Environment Soils*, Atlas New S. Wales, http://atlas.nsw.gov.au/public/nsw/home/topic/article/soils.html (last visited Aug. 8, 2012) (discussing other limiting factors).

FIGURE 4-1.
ILLUSTRATION OF CAPABILITY CLASSES BY LAND TYPE AND SLOPE [16]

These capability classes range from Class I, the most productive and least limited soil, to Class VIII, which is so limited that it is "nearly preclude[d] . . .[from] commercial crop production" (see Figure 4-1).[14] Classes V-VIII are very susceptible to erosion, and poor agricultural practices used in the industrial farming system threaten their ability to sustain high crop production in the long term.[15]

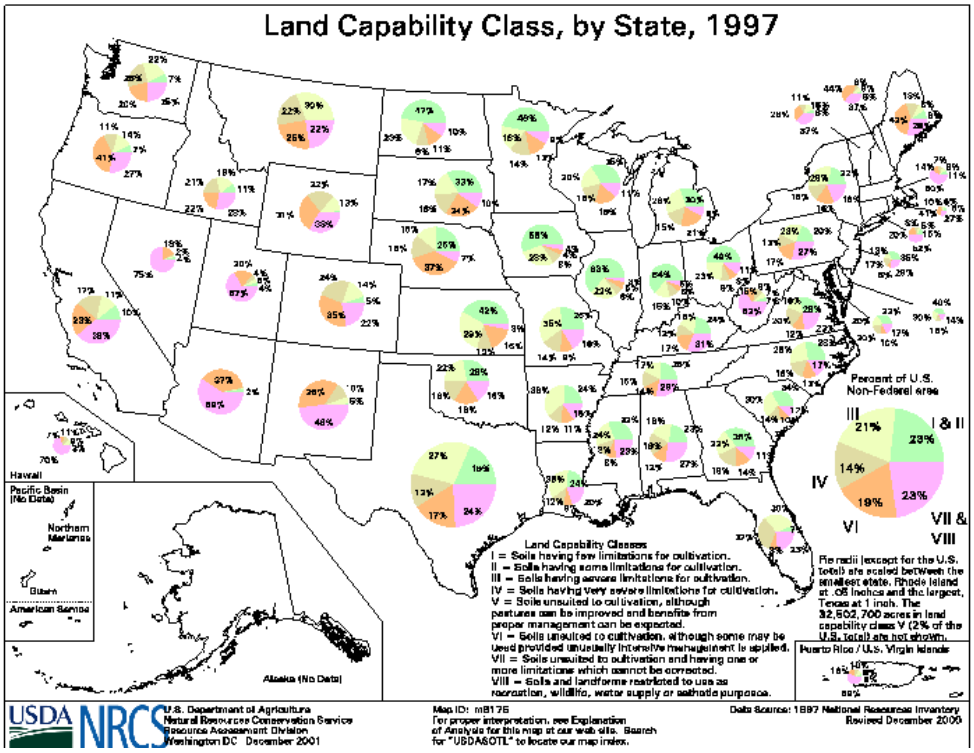
The best soils for food (class I) are "level, deep, well-drained and easy to work"[17] with and have few constraints as to their use.[18] Classes II and III provide for most of the nation's cultivated cropland.[19] Class II soils may be good but are characterized by "moderate limitations that restrict the choice of plants" and both II and III generally require conservation measures due to their limitations.[20] For example, action might need to be taken to prevent erosion in certain areas. Without conservation on these soils, they will become degraded with use.

Since much of the Saint Louis Regional Foodshed contributes to the nation's supply of corn and soybeans, it is no surprise that the soil capability is excellent for crop production in most of the region. As a whole, Missouri has "10.3 million acres of cultivated cropland [and] 92.1 percent" of which has soils "in capability classes I-III."[21]

Further, "[a]pproximately 89 percent of Illinois agricultural land could be used to grow crops" in 2010.[22] In 1997, the percentage of non-Federal land that was in Capability Class I or II was 26% in Missouri and 63% in Illinois (Figure 4-1).[23] In addition, 35% and 22% of non-Federal land in Missouri and Illinois, respectively, were in Class III.[24]

As Map 4-1A illustrates, Illinois had the highest percentage of total non-Federal land in Classes I-III, and only second to Indiana in highest percentage of total non-Federal land in Class I in 1997.[25] Only Minnesota and Kansas had a higher percentage of their total non-Federal land in Classes I-III than Missouri.[26] Nineteen states had a greater percentage of their non-Federal land in Classes I & II than Missouri; however, Missouri is larger than eight of those states.[27]

The western and southwestern states (Washington, Oregon, California, Arizona, New Mexico, Utah, Nevada, Colorado, Wyoming, Montana, Idaho) had less than 11% of its non-Federal land in Classes I and II; Wyoming, Montana, and New Mexico had only 1% of non-Federal land in Classes I and II.[28]



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14 *From the Ground Down*, *supra* note 12, at 14.
15 *Id.*
16 Source of image: *Unit 8 - Soil Survey: Chapter 3 - Land Classification*, U. Minn. (2009), http://www.swac.umn.edu/classes/soil2125/doc/s8chp3.htm.
17 Nat'l Cooperative Soil Survey, U.S. Dep't of Agric., *Soil Survey of Osage County, Missouri* 56 (1999) http://soildatamart.nrcs.usda.gov/manuscripts/MO151/0/Osage_MO.pdf.
18 *See From the Ground Down*, *supra* note 12, at 14.
19 *Id.*
20 *Id. See* Definitions section for NRCS definitions of all Soil Capability Classes.
21 *Id.* at 15.
22 Nat'l Agric. Statistics Serv., U.S. Dep't of Agric., *Illinois Agriculture* 1 (2011) http://www.nass.usda.gov/Statistics_by_State/Illinois/Publications/Farmfacts/farmfact.pdf.
23 Natural Res. Conservation Serv., U.S. Dep't of Agric., *Land Capability Class, by State, 1997*, 1 (2001) http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/nrcs143_012445.pdf.
24 *Id.*

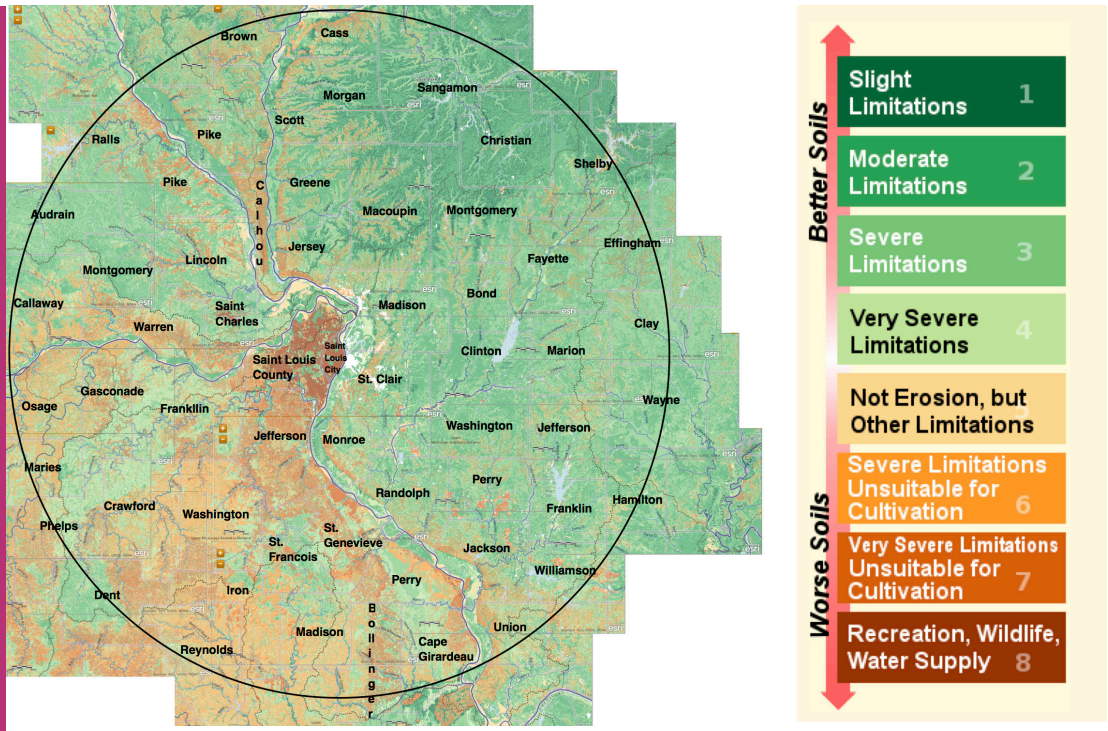
In 8 of those 11 states, Classes VII and VIII made up the largest percentage of their non-Federal land. *Id*.

Lastly, except for Louisiana and Arkansas, Missouri had more of its non-Federal land in Class III capability class than any other state.[29]

However, Map 4-1B, a more recent survey of the Saint Louis Regional Foodshed's capability classes, shows that most of the Missouri portion of the Foodshed is limited in its agricultural capability. Fortunately, it appears that farmers in the region are aware of these limitations because as illustrated in Map 4-3 the counties with soils in capability classes IV-VIII have fewer acres of farmland than the counties with soils in capability classes I-III.

Population growth and expansion of the urban core in the Saint Louis Regional Foodshed have placed further limitations on the region's farmland and agricultural production capacity.

The population expansion of metro Saint Louis eventually hindered the ability to farm in newly populated areas. As shown on Map 1-1, a significant portion of the region is designated as either a part of the Saint Louis Urban Core, a high commuting area to the Urban Core, or a Large Town. According to the New Geography contributing editor Wendell Cox, 17 of the 58 counties in the Saint Louis Regional Foodshed compose the Saint Louis Metropolitan area.[31] It is important to note that while the entire Saint Louis Metropolitan area population increased by 33% between 1950 and 2009, the city of Saint Louis population decreased by 58% and the Inner Ring of Saint Louis, St. Clair, and Madison counties increased in population by 92%, from 795,000 to over 1.5 million.[32]



MAPS 4-1 A&B.
LAND CAPABILITY CLASSES OF U.S. NON-FEDERAL LAND, 1997 AND DISTRIBUTION OF NON-IRRIGATED CAPABILITY CLASSES IN THE SAINT LOUIS REGIONAL FOODSHED[30]

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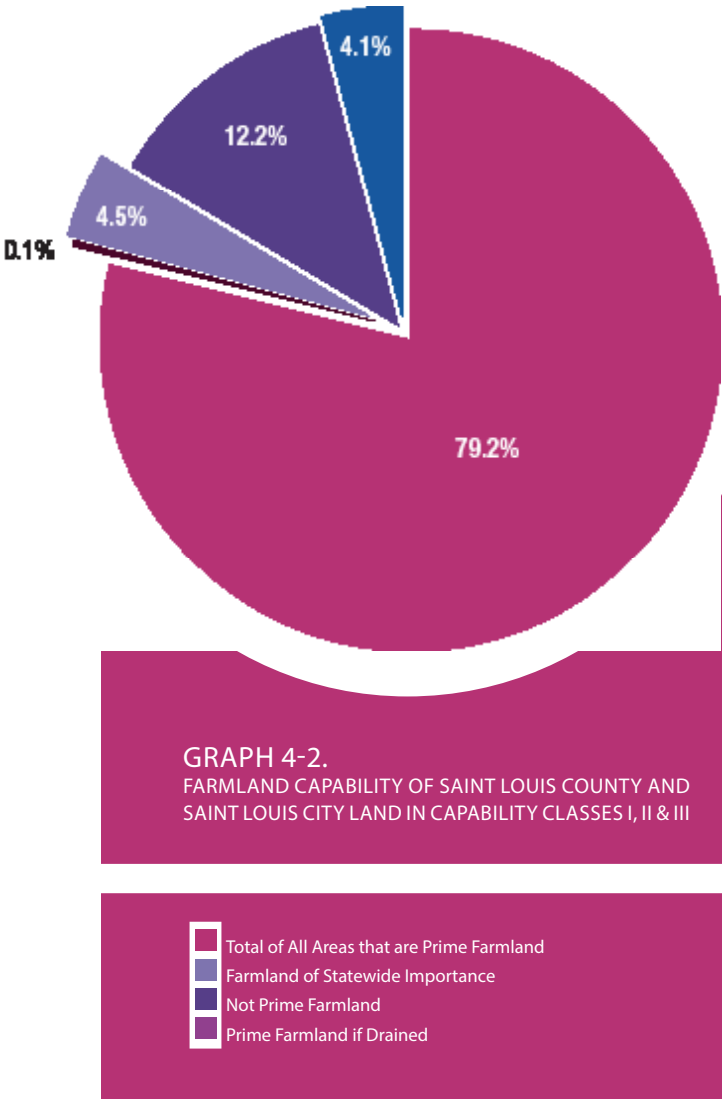
25 *Id.*
26 *Id.*
27 *Id.*
28 *Id.*
29 *Id.*; *Agricultural Capability of Soils (beta)*, ArcGIS, http://www.arcgis.com/apps/OnePane/basicviewer/index.html?appid=ff3af737ebb942d99bcf2140a8ec2082. For total acreage in each capability class, *see* USDA NRCS Web Soil Survey, http://websoilsurvey.nrcs.usda.gov/app/WebSoilSurvey.aspx (last visited Aug. 8, 2012) [hereinafter Web Soil Survey].
30 Source of image: *Id.*
31 Wendell Cox, *Shrinking City, Flourishing Region*, New Geography (Jan. 27, 2011) http://www.newgeography.com/content/002013-shrinking-city-flourishing-region-st-louis-region.
32 *Id.*



GRAPH 4-2.
FARMLAND CAPABILITY OF SAINT LOUIS COUNTY AND SAINT LOUIS CITY LAND IN CAPABILITY CLASSES I, II & III

Likewise, the Middle Ring population of the metro area increased by a breathtaking 290%, from 213,000 in 1950 to 834,000 in 2009.33 The Outer Ring increased in population by nearly 130%, from 78,000 to 178,000.34 As people left the city and settled in the surrounding farmland, urbanization and development eliminated farming on much of the land in capability classes I-III. One such example is in the Saint Louis County suburb of Chesterfield. In 1993, over 1,000 acres of Chesterfield Valley farmland "was under up to 15 feet of water" but in its place now stands "a $275 million mall, longest outdoor strip mall in America, . . . protected by a 500-year flood levee."35 This poor land management decision removed farmland in the Missouri River floodplain from production.

Due to the significant land development in Saint Louis County over the last century, it is no surprise that Saint Louis County contains only 32,294 acres of "land in farms," 20,243 acres of cropland, and 5,677 acres of pasture land.[36] Saint Louis City and Saint Louis County make up 376,600 acres and 226,400 acres of which, or 60.1%, have soils in capability classes I-III (the classes used for cultivation).[37]

Of the total land in classes I-III, 179,200 acres, or 79.2% of the total land in classes I-III, is designated as "not prime farmland" because it has been used for urban development,38 like the Chesterfield, Missouri strip mall (see Graph 4-2). In addition, 162,200 acres contain soil types that are erosive and 18,300 acres of which are in categories other than "not prime farmland," meaning some of even the prime farmland in these two counties is at risk for productivity loss if poor agricultural practices are used.[39]

In contrast, Sangamon County, Illinois, the Foodshed county with the largest acreage of "land in farms," includes 485,192 acres of cropland,[40] and 19,324 acres of pasture land, totaling 518,153 acres.[41] Of Sangamon's 555,712 total acreage, only 37,021 acres, or 6.6%, is classified as "not prime farmland," contrasted with the 79.2% of Saint Louis County and Saint Louis City land classified as "not prime farmland."[42]

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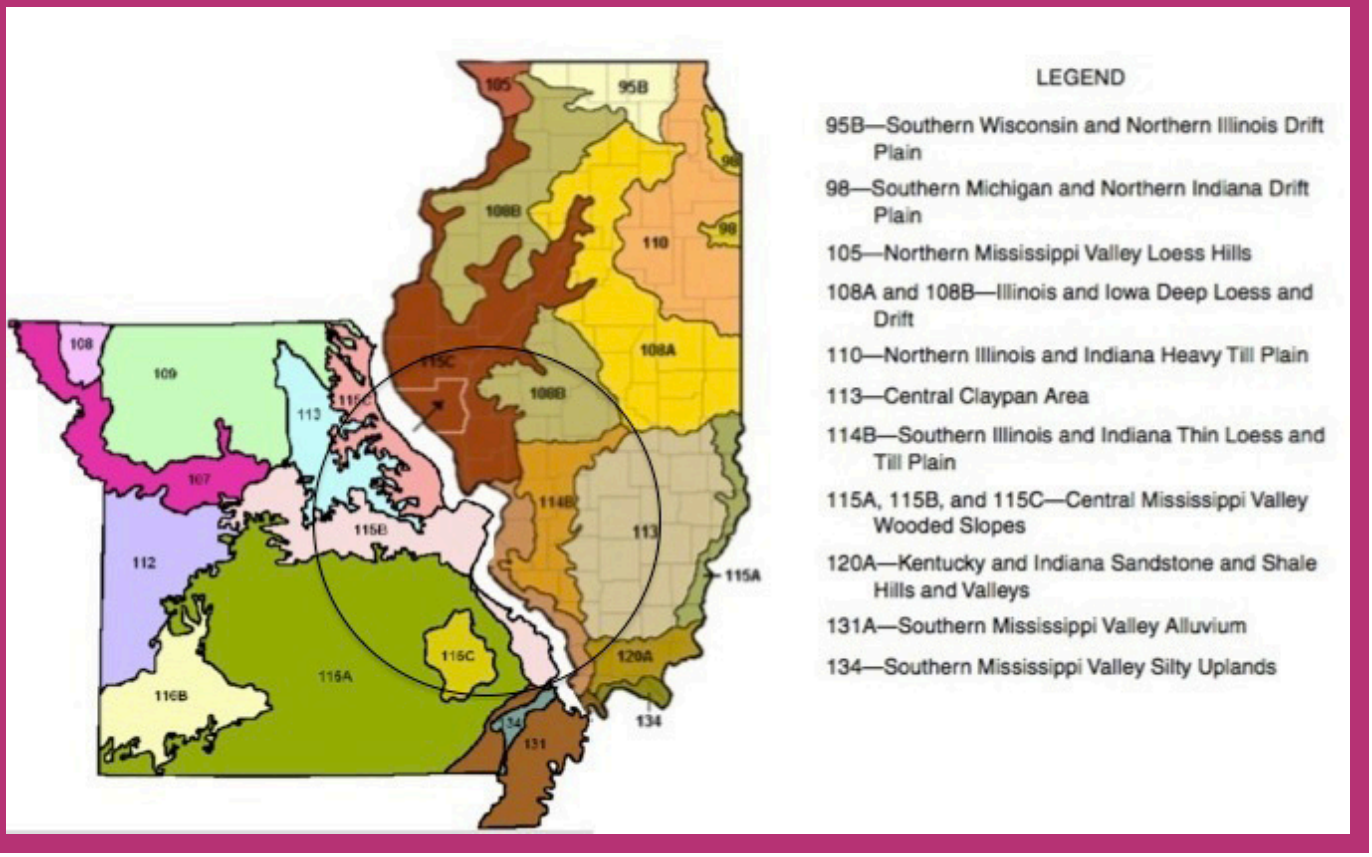
33 *Id.* The Middle Ring contains the Missouri counties of Franklin, Jefferson and Saint Charles, and the Illinois counties of Bond, Clinton, Jersey, Macoupin, and Monroe. *Id.*
34 *Id.* The Outer Ring contains the Missouri counties of Lincoln, Saint Francois, Warren and Washington and the Illinois county of Calhoun. *Id.*
35 *Recent Floodplain Development*, Missouri Coalition for the Environment, http://www.moenviron.org/water-program/floodplains/recent-floodplain-development/ (last visited Aug. 13, 2012).
36 *2007 Census of Agriculture - Missouri*, *supra* note 2, at 371, 386.
37 Web Soil Survey, *supra* note 29 (select "Soil Survey Area" menu in the Area of Interest (AOI) tab, select "Missouri" and "St. Louis" from the drop down menus and click "set AOI" button; then select "Soil Reports", select "Land Classifications" drop down menu; then select "Land Capability Classification" option and select "View Soil Report" button); Web Soil Survey, *supra* note 29 (select "Soil Survey Area" menu in the Area of Interest (AOI) tab, select "Missouri" and "St. Louis" from the drop down menus and click "set AOI" button; then select "Soil Data Explorer", select the "Suitabilities and Limitations of Use" tab and select "Land Classifications" drop down menu; then select "Farmland Classification" option and select "View Rating" button). The AOI "St. Louis" included the area of both Saint Louis County and Saint Louis City.
38 *Id.*
39 *Id.*
40 *2007 Census of Agriculture - Illinois*, *supra* note 2, at 356.
41 *Id.* at 369.
42 Web Soil Survey, *supra* note 29 (select "Soil Survey Area" menu in the Area of Interest (AOI) tab, select "Illinois" and "Sangamon County" from drop down menus and click "set AOI" button; then select "Soil Data Explorer", select the "Suitabilities and Limitations of Use" tab and select "Land Classifications" drop down menu; then select "Farmland Classification" option and select "View Rating" button.

Both the national data and the regional data from counties with the least and greatest acreage of "land in farms," show that Missouri and Illinois are fortunate to have good productive land for agriculture. Unfortunately, Missouri and Illinois both have significant erosion issues, as demonstrated by the Saint Louis County and Saint Louis City land discussion, attributed mostly to poor practices of the industrial farming system. The 2007 National Resources Inventory report from NRCS reveals that Missouri ranks as the sixth worst state for sheet and rill soil erosion, of which agricultural practices are a major factor.[43] In 2007, Missouri had a total of 13,285,700 acres of cropland[44] and had an estimated average annual sheet and rill erosion on cultivated non-federal rural land of 5.3 tons/ac./yr.[45]

During the same year, Illinois had a total of 23,910,500 acres of cropland[46] and an estimated average annual sheet and rill erosion on cultivated non-federal rural land of 3.9 tons/ac./yr.[47]

When unsuitable land is converted to farm use, such as arid land conversion in the Great Plains during the 1930s, more problems are created than solved.[48] When farms expand their acreage on unsuitable land, production may increase in the short term but the exhausted soil eventually becomes unproductive. Degraded soil loses the ability to sustain the natural vegetation it once had, making it susceptible to erosion. In the end, the nation's intensive agricultural practices leave soils lacking in quality relative to their state at onset of intensive cultivation.

MAP 4-2. MAJOR LAND RESOURCE AREAS OF THE SAINT LOUIS REGIONAL FOODSHED[50]



[43] Natural Res. Conservation Serv., U.S. Dep't of Agric., *Summary Report: 2007 National Resources Inventory* 90 (2009), http://www.nrcs.usda.gov/Internet/FSE_DOCUMENTS/stelprdb1041379.pdf [hereinafter *Summary Report: 2007 National Resources Inventory*].
[44] *Id.* at 50.
[45] *Id.* at 90.
[46] *Id.* at 47.
[47] *Id.* at 87.
[48] David Grigg, *Chapter 4: The Industrial Revolution and Land Transformation*, *in* Land Transformation in Agriculture, 79, 89 (M. G. Wolman & F. G. A. Fournier eds., 1987) http://globalecology.stanford.edu/SCOPE/SCOPE_32/SCOPE_32_1.4_Chapter4_79-109.pdf.
[49] USDA Natural Resources Conservation Service, *U.S. Department of Agriculture Handbook 296: Land Resource Regions and Major Land Resource Areas of the United States, the Caribbean, and the Pacific Basin* 2-3 (2006) ftp://ftp-fc.sc.egov.usda.gov/NSSC/Ag_Handbook_296/Handbook_296_high.pdf [hereinafter *MLRA*].
[50] Sources of image: *Missouri Major Land Resource Areas*, The Cooperative Soil Survey, http://www.soilsurvey.org/maps/mlra.asp (last visited Mar. 7, 2013); USDA Natural Resources Conservation Service, *Soil Survey of Pike County, IL* 2 (2006) http://soildatamart.nrcs.usda.gov/Manuscripts/IL149/0/Pike_IL.pdf.

TABLE 4-1. MLRA DATA OF THE SAINT LOUIS REGIONAL FOODSHED[51]

MLRA number & name	Largest land uses & corresponding precentage of total MLBA area	Main commodities grown	Special crops (if any)	Major soil orders
108A- Illinois & Iowa Deep Loess & Drift, Eastern Part	Private cropland (80%) & private urban development (8%) *Id. at 335.*	Cash-grain crops & livestock. Dry farmed corn for grain & silage & on less sloping soils. *Id.* at 336.	Specialty crops grown on a few irrigated areas of broad outwash plains. *Id.* at 336.	Mollisols & Alfisols; most soils are Udolls or Aquolls (types of Mollisols) *Id.* at 335.
108B- Illinois & Iowa Deep Loess & Drift, East-Central	Private cropland (79%) & private grassland (7%) *Id. at 338.*	Cash-grain crops, followed by hay & pasture crops from local livestock feed. *Id. at 338.* Soybeans, grain & dry-farmed corn are produced on less sloping soils. *Id.*		Alfisols, Entisols, Inceptisols & Mollisols. *Id.* at 337-38.
113- Central Claypan Areas- IL & MO	Private cropland (67%) & private grassland (10%) *Id. at 358.*	"Nearly all of this MFLA is farmed. Corn, soybeans, other feed grains, & hay for cattle & other livestock are the main crops." *Id.* at 359.		Alfisols. *Id.* at 358.
114B- Southern Illinois & Indiana Thin Loess & Till Plain, Western	Private cropland (47%) & private forestland (27%) *Id. at 351.*	Cash-grain crops and livestock. Soybeans, grain, & dry-farmed corn are produced on less sloping soils. *Id.* at 361.		Alfisols and Inceptisols. *Id.* at 352.
115B- Central Mississippi Valley Wooded Slopes, Western Part	Private cropland (32%) & private forestland (28%) *Id. at 357.*	Cash-grain crops and livestock. Soybeans, grain, & dry-farmed corn are grown on less sloping soils. *Id.* at 357.	Popcorn & apples. *Id.* at 363.	Alfisols, Entisols, Inceptisols, & Mollisols. *Id.* at 357.
115C- Central Mississippi Valley Wooded Slopes, Northern Part	Private cropland (59%) & private forestland (17%) *Id. at 370.*	Cash-grain crops and livestock. Soybeans, grain, & dry-farmed corn are grown on less sloping soils. *Id.* at 370.	"[V]egetables, christmas trees, grape vineyards, & apple and peach orchards" *Id.* at 370.	Alfisols, Entisols, Inceptisols, & Mollisols. *Id.* at 369.
116A- Ozark Highland	Private forestland (48%) & private grassland (32%) *Id. at 374.*	"Forage and grain are grown for beef, dairy cattle, & other livestock raising cattle... is one of the major industries in the area." *Id.* at 375.	Orchards, watermelon, & pumpkins. *Id.* at 370.	Alfisols & Ultisols. *Id.* at 369.
116C- St. Francois Knots & Basins (entirely in southeastern MO)	Private forestland (59%) & private grassland (19%) *Id. at 379.*	"Timber production...& livestock production are... major land uses [,&]...corn and soybeans are the major cash crops grown. *Id. at 379.*	"Specialized farming includes vineyards & small orchards." *Id.* at 375.	Alfisols & Ultisols. *Id.* at 378.
120A- Kentucky & Indiana Sandstone & Shale Hills & Valleys, Southern Part	Private cropland (35%) & private forestland (23%) *Id. at 387.*	Cash-grain crops & livestock. Dry-farmed corn grain & soybeans are grown on less sloping soils. *Id. at 387.* Also some grain sorghum & winter wheat are grown. *Id.*		Udalfs (a type of Alfisol). *Id.* at 387.
131A- Southern Mississippi River Alluvium	Private cropland (70%) & private forestland (15%) *Id. at 419.*	Cotton, soybeans, milo, & corn. *Id.* at 419.		Alfisols, Verisols, Inceptisols & Entisols. *Id.* at 418.
134- Southern Mississippi Valley Loess	Private forestland (38%) & private cropland (36%) *Id. at 435.*	Cotton, corn, rice, soybeans & wheat. *Id.* at 435.		Alfisols, Entisols, Inceptisols & Ultisols. *Id.* at 435.

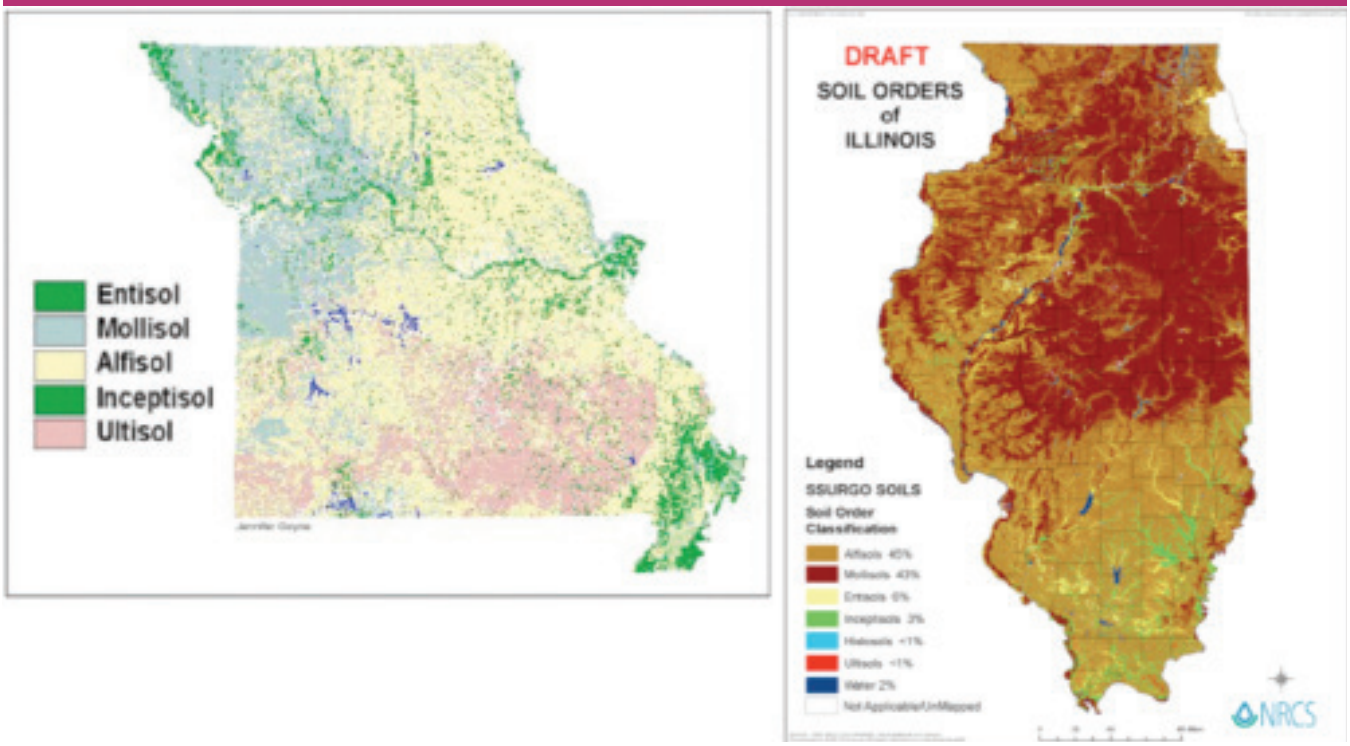
[51] *See MLRA, supra* note 49.

The Saint Louis Regional Foodshed and the entire nation must implement soil conservation practices to prevent soil degradation on agricultural land and secure productivity for years into the future. In addition to land capability classes, Major Land Resource Areas are also used to group land areas with similar characteristics and analyze their resources and productivity. The Saint Louis Regional Foodshed is comprised of 11 Major Land Resource Areas (MLRAs), based on the area's physiology, geology, climate, water, soils, biological resources and land use.[49] Both Map 4-2 and Table 4-4 illustrate the Saint Louis Regional Foodshed's land uses of each of its MLRAs and Table 4-4 lists the major soils found in each MLRA.

As Table 4-1 illustrates, much of the Saint Louis Regional Foodshed's land is private cropland and grows primarily cash-grain crops, such as corn, soybean, and wheat. Entisols, Alfisols, and Mollisols are highly fertile soils that can sustain crop production.[52] Fortunately for the Saint Louis Regional Foodshed, much of its land contains those soil orders (Map 4-3 and Table 4-1). Because of the Foodshed's good land capability classes and the high quality soils that can maintain a variety of crop species, it is evident that these resources can be used to increase crop diversity on existing farmland. Further, communities in the region may wish to conserve this high quality land in predominantly urban parts of the region that are not yet developed.

The MLRA encompassing the largest portion of the Missouri part of the region is 116A - Ozark Highlands. "The landscape ranges from highly dissected, steeply sloping wooded hills and narrow, gravelly valleys in the central and southern parts of the area to gently rolling prairie-like uplands in the northern part."54 The southern part of the Ozark Highlands contains "well developed karst topography," which "includes sinkholes, caves, dry valleys, box valleys, and large springs."55 This area is predominately made up of forestland and grassland, making it one of the less fertile areas for crop production. The Ozark Highlands surround a small MLRA called 116C - St. Francois Knobs and Basins, which is also mostly made up of forestland and private grassland.56 It is used mostly for timber and livestock production.57

MAP 4-3. DISTRIBUTION OF SOIL ORDERS IN MISSOURI AND ILLINOIS[53]



[52] *Soils Tutorial: Soil Taxonomy*, The Cooperative Soil Survey, http://www.soilsurvey.org/tutorial/page4.asp. At the time of publication, The Cooperative Soil Survey was in the process of moving to a new server, www.soilsurvey.org. *See* www.soilsurvey.org if the cited webpage is unavailable.

[53] Sources of images: *Id.*; *Illinois Suite of Maps*, USDA NRCS Illinois (Jan. 31, 2012) http://www.nrcs.usda.gov/wps/portal/nrcs/detail/il/soils/?cid=nrcs141p2_030697.

[54] *MLRA*, *supra* note 49, at 373.

[55] *Id.*

[56] *Id.* at 379.

[57] *Id.*

115 C - Central Mississippi Valley Wooded Slopes, Northern Part makes up most of the north-central part of the region and private cropland constitutes 58% of this MRLA.[59]

The northeast corner of the region is made up of MLRA 108 A and 108 B, which both contain Iowa and Illinois Deep Loess soils. 108 A is found in seven Illinois counties and 108 B is found in one Illinois county. These two areas are significant to the region's potential for local crop production because loess is the most agriculturally productive soil type.

113 Central Claypan Areas covers parts of 14 Illinois counties in the eastern-central portion of the region. This MLRA is "covered with loess, which overlies old (pre-Wisconsin) glacial drift that has a high content of clay and the soils are "generally . . . very deep, well drained to poorly drained, and loamy or clayey."[60]

FIGURE 4-2. PHOTOGRAPH OF OZARK HIGHLANDS[58]

Sixty seven percent of this MRLA is used for private cropland and 10% is used for private grassland, which makes it a productive resource area for local crop production that is already predominantly made up of agriculture land.[61]

FIGURE 4-3. LOESS COVERED HILLS[63]

Much of the region's Urban Core lies in very fertile resource areas. For example, 115 B-Central Mississippi Valley "consists mainly of the deeply dissected, loess-covered hills bordering the Missouri and Mississippi Rivers, their adjacent flood plains, and several relatively smooth, loess-mantled karst plains," making it a highly fertile landscape.[62] Figure 4-3 displays a photograph of loess-covered hills that are common topography of the MLRA 113 landscape.

However, this MLRA contains the Illinois counties of Madison, St. Clair, and Monroe and the Missouri counties of Saint Louis City, Saint Louis County, Saint Charles, Warren, Montgomery, and Callaway. Except for Montgomery and Callaway County, all of these counties are either part of the region's Urban Core or have a high number of individuals commuting to the Urban Core. Thus, the region has developed on highly productive land. Therefore, the Saint Louis Regional Foodshed may need to consider utilizing existing green space or farmland preservation strategies in these urban and commuter areas in order to increase local crop production.

To answer our question, "Can We Feed Ourselves?" more research is needed on the extent of soil degradation and soil contamination both on the already existing agricultural land and in urban areas that want to increase their number of community gardens or urban farms. While this chapter illustrates that the Saint Louis Regional Foodshed contains soil classes well suited for vegetable plant growth, if particular areas of the region have soil contaminated with pollutants or degraded by intensive agriculture practices, soil restoration and conservation practices must be implemented before increasing local food production.

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58 Source of image: Danny McMurphy, Ozark Trail Association, "View South from Stegall Mtn," Flickr (May 3, 2011), http://www.flickr.com/photos/85686620@N00/5691935030/in/set-72157626656580206/.

59 *MLRA*, *supra* note 49, at 370.

60 *Id.* at 358.

61 *Id.*

62 *Id.* at 366.

Historical Analysis: Acreage, Average Size, and Number of Farms

While some high quality soil is unavailable due to urban development and urban sprawl, fortunately, the Saint Louis Regional Foodshed has 48,864 farms, which occupy about 14.7 million acres, or 68% of the region's total land area (21,372,877 acres), and 13.7 million of which is used for agricultural purposes.[64]

In this region (and across the United States), farming has changed drastically within the last century. In the early 1900s, agriculture was extremely labor intensive and small farms dotted the rural landscape producing a range of diverse crops like fruits, grains, vegetables, and livestock.[65] At that time more than half of the U.S. population lived and worked on these farms and each farm produced five commodities on average.[66]

[63] Source of image: Ted C. Macrae, *The Loess Hills in Missouri*, Wordpress.com (Sept. 5, 2008), http://beetlesinthebush.wordpress.com/2008/09/05/the-loess-hills-in-missouri/.

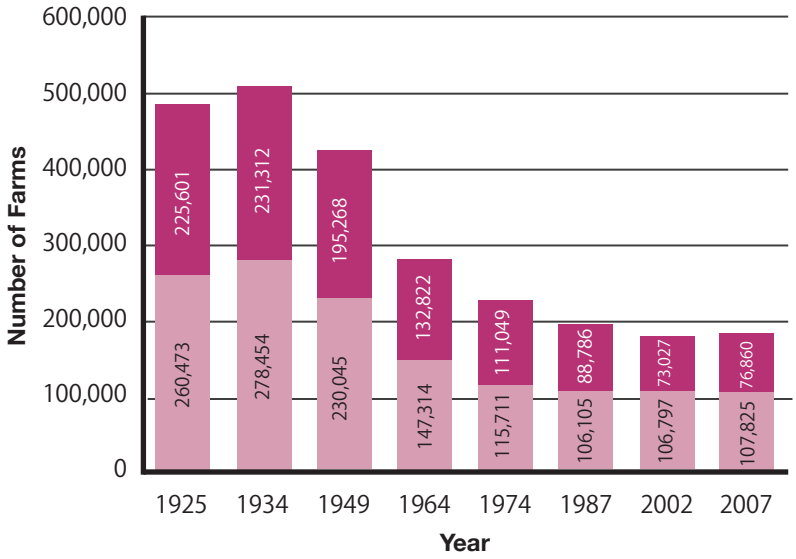
[64] *See 2007 Census of Agriculture - Missouri*, *supra* note 2, at 359-73; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-58.

[65] Dimitri et al., U.S. Dep't of Agric., Econ. Research Serv., *The 20th Century Transformation of U.S. Agriculture and Farm Policy* 2 (2005) http://www.ers.usda.gov/media/259572/eib3_1_.pdf.

[66] *Id.*

In a span of eighty-two years, from 1925 to 2007, the total number of farms in Missouri and Illinois diminished substantially from 486,074 to 184,685 (Graph 4-3).[67] During the same time span, the average size of farms increased 115% in Missouri, from 125 to 269 acres, and increased 150% in Illinois, from 136 to 348 acres (Graph 4-4).[68]

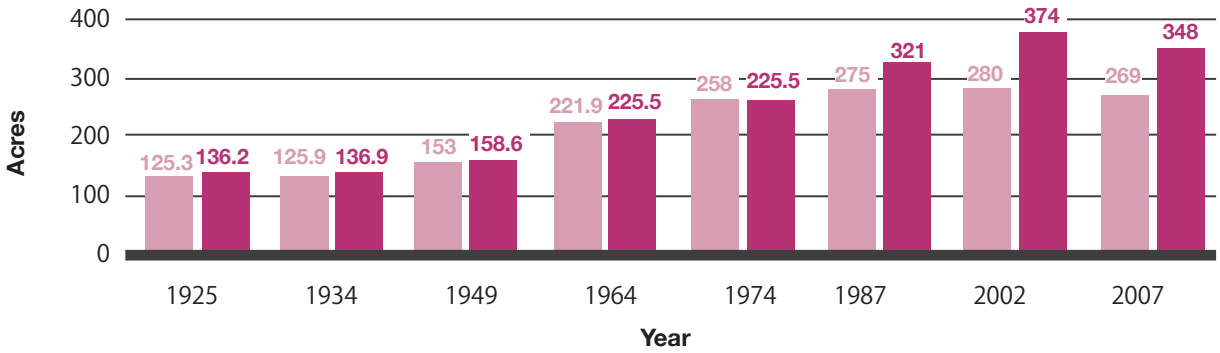
Likewise, the number of farms in the Saint Louis Regional Foodshed has decreased from 137,770 in 1925[69] to 48,864 in 2007,[70] while the average size of farms has increased substantially, from 134 acres[71] in 1925 to 284 acres,[72] in 2007.[73] As of 2007, nearly one-third of the region's farms are between 50 and 179 acres (see Graph 11).[74]



GRAPH 4-3. TOTAL FARMS IN MISSOURI & ILLINOIS, 1925-2007

MO NUMBER OF FARMS

IL NUMBER OF FARMS



GRAPH 4-4. AVERAGE FARM SIZE IN MISSOURI & ILLINOIS, 1925-2007

MO NUMBER OF FARMS

IL NUMBER OF FARMS

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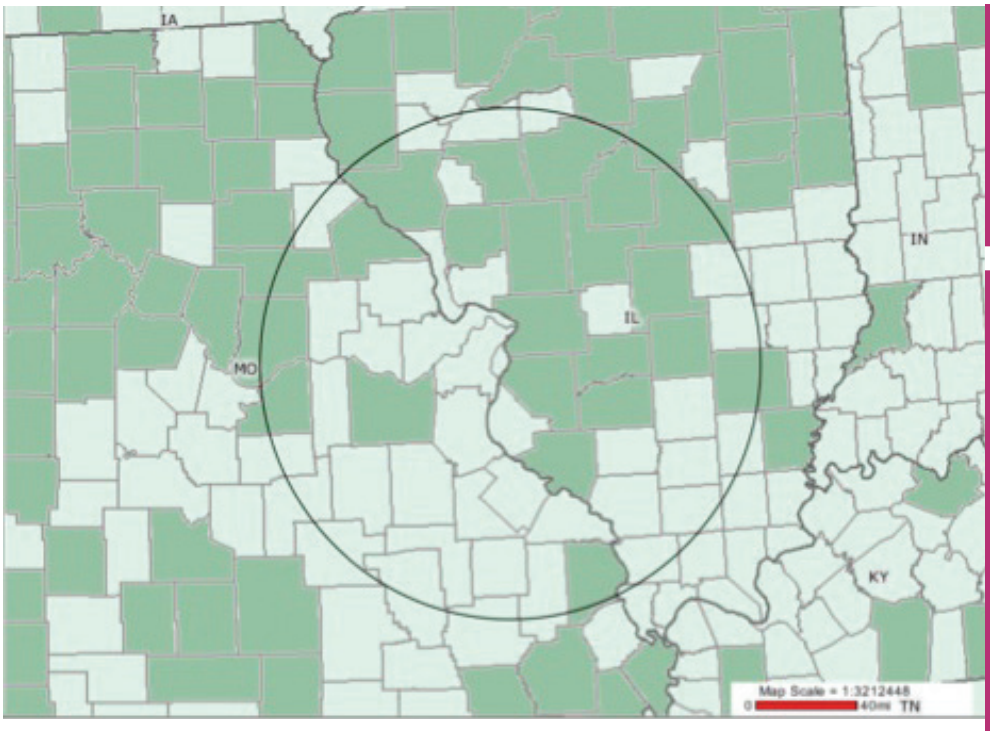
[67] *See* U.S. Dep't of Commerce, *Missouri*, *in* U.S. Census of Agriculture 1925, 904, 904-16 (1927), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1925/01/17/1925-01-17.pdf [hereinafter *1925 Census of Agriculture - Missouri*]; U.S. Dep't of Commerce., *Illinois*, *in* U.S. Census of Agriculture 1925, 492, 492-503 (1927), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1925/01/12/1925-01-12.pdf [hereinafter *1925 Census of Agriculture - Illinois*]; U.S. Dep't of Commerce, *Missouri*, *in* U.S. Census of Agriculture: 1935, 262-71 (1936), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1935/01/17/1935-01-17.pdf [hereinafter *1935 Census of Agriculture – Missouri*]; U.S. Dep't of Commerce, *Illinois*, *in* U.S. Census of Agriculture: 1935, 145 (1936), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1935/01/12/1935-01-12.pdf [hereinafter *1935 Census of Agriculture – Illinois*]; U.S. Dep't of Commerce, *U.S. Census of Agriculture: 1954, Volume 1 Counties and State Economic Areas, Part 10 Missouri* 2 (1956), [hereinafter *1954 Census of Agriculture – Missouri*]; U.S. Dep't of Commerce, *U.S. Census of Agriculture: 1954, Volume 1 Counties and State Economic Areas, Part 5 Illinois* 2 (1956), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1954/01/12/1954-01-12.pdf [hereinafter *1954 Census of Agriculture – Illinois*]; U.S. Dep't of Commerce, *1987 Census of Agriculture – Illinois State and County Data* 7 (1989), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1987/01/13/1987-01-13.pdf [hereinafter *1987 Census of Agriculture – Illinois*] (provides total farms in Illinois for years 1964, 1974, and 1987); U.S. Dep't of Commerce, *1987 Census of Agriculture – Missouri State and County Data* 7 (1989), http://usda.mannlib.cornell.edu/usda/AgCensusImages/1987/01/25/1987-01-25.pdf [hereinafter *1987 Census of Agriculture – Missouri*] (provides total farms in Missouri for years 1964, 1974, and 1987); *2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (provides total farms in Missouri in years 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (provides total farms in Illinois for years 2002 and 2007).

[68] *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 904; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492; *1935 Census of Agriculture – Illinois*, *supra* note 67, at 146; *1935 Census of Agriculture - Missouri*, *supra* note 67, at 262; *1954 Census of Agriculture – Missouri*, *supra* note 67, at 44; *1954 Census of Agriculture – Illinois*, *supra* note 67, at 44; *1987 Census of Agriculture – Missouri*, *supra* note 67, at 7 (provides average size of farms in Missouri for years 1964, 1974, and 1987); *1987 Census of Agriculture – Illinois*, *supra* note 67, at 7 (provides average size of farms in Illinois for years 1964, 1974, and 1987); *2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (provides total farms in Missouri for years 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (provides total farms in Illinois in years 2002 and 2007).

GRAPH 4-5. NUMBER OF FARMS IN THE SAINT LOUIS REGIONAL FOODSHED BY SIZE, 2007

Between 1925 and 2007, the Saint Louis Regional Foodshed decreased its total "land in farms" from 16,502,375 acres to 13,710,166 acres, yet, increased its total cropland from 8,983,548 acres to 9,863,989 acres, suggesting that farm activities shifted from small-scale diversified operations to large-scale monoculture operations.[75] Cropland made up 55% of total "land in farms" in 1925. By 2007, the proportion of "land in farms" designated to crop production increased to 72%. These two figures illustrate how the agriculture industry has placed a greater emphasis on crop production despite the fewer acres of agriculture land available. Map 4-4 illustrates the total farm acreage of each county in the Saint Louis Regional Foodshed in 2007.



MAP 4-4. FARM ACREAGE OF THE SAINT LOUIS REGIONAL FOODSHED, 2007[76]

LEGEND

- 2010 State Boundaries
- 2010 County Boundaries
- Number of Acers in Farms, by County
- Not Disclosed
- 1-250,000
- 250,000-800,000
- 800,000-2,000,000
- 2,000,000-6,000,000
- Less than 1 acre

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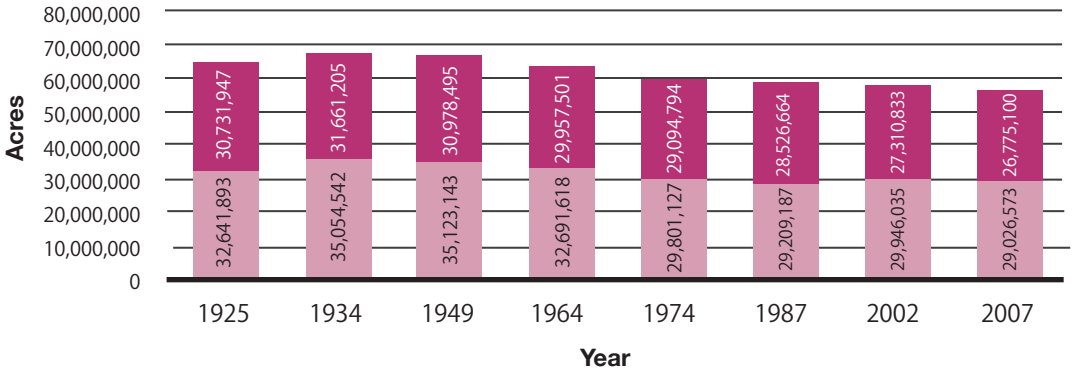
69 *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 904-15; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492-503.
70 *See 2007 Census of Agriculture - Missouri*, *supra* note 2, at 359-73; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-58.
71 *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 904-15; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492-503.
72 *See 2007 Census of Agriculture - Missouri*, *supra* note 2, at 359-73; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-58.
73 The average farm size for the Saint Louis Regional Foodshed was calculated by averaging the reported "average farm sizes" for each county.
74 *2007 Census of Agriculture - Missouri*, *supra* note 2, at 359-73; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-58.
75 *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 904-15; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492-503; *2007 Census of Agriculture - Missouri*, *supra* note 2, at 359-73; *2007 Census of Agriculture - Illinois*, *supra* note 2, at 346-58.
76 Ctr. Applied Research & Envtl. Sys., National Interactive Maps: CARES Map Room (2011), http://ims2.missouri.edu/tool/maps/default.aspx. (select "Food Environment" menu and select "Agriculture" hyperlink; then select "Number of Acres in Farms" and select "Make Map" button) (last visited July 9, 2013). For all Center for Applied Research and Environmental Systems (CARES) maps created for this study, the first step to create all CARES maps in this report is given here and omitted from subsequent footnotes: Select "Administrative Areas" menu and follow "Census Boundaries" hyperlink; then select "County Boundaries." The parenthetical that follows the CARES Map Room URL in each footnote describes the second step, which is locating each layer on the CARES website that is used for the particular map. When data from CARES maps are referenced in the study, that data can be located on the CARES Map Room webpage with the following final steps: select "select features" tool from toolbar and drag mouse across Foodshed counties on map; select [specific data layer name] from Active Map Layer drop down menu and select "Download All Data" button. If a map shows more than one data layer, repeat the last step for each data layer's exact numbers.

With a decrease in "land in farms," the Saint Louis Regional Foodshed's increase in average farm size was the result of farm consolidation, reflected in the substantial decrease in number of farms and farmers/farm employees (417,383 farm population 10 years of age or older in 1925[77] to 71,537 operators and 23,978 people categorized as hired farm labor in 2007[78]) over eighty-two years. Although the U.S. population and the demand for agricultural products continue to grow, the amount of land used for agriculture has decreased.[79] Total "land in farms" in Missouri and Illinois reflect this national trend, decreasing by 11% and 13%, respectively, between 1925 and 2007 (See Graph 4-6).[80]

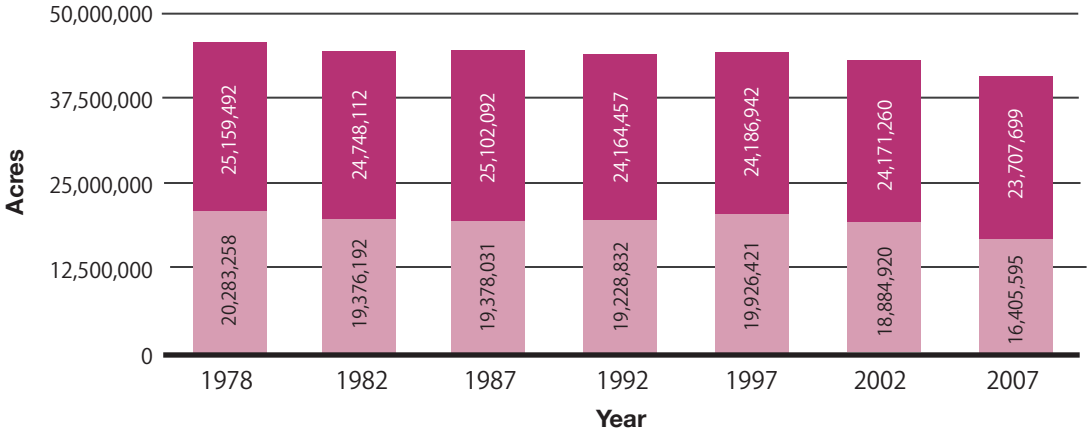


GRAPH 4-6.
MISSOURI AND ILLINOIS "LAND IN FARMS" 1925-2007

MO NUMBER IN FARMS

IL NUMBER IN FARMS

While the region's cropland increased between 1925 and 2007, in the last three decades, the region began using some of this cropland for other purposes. Suburbanization and urban development are likely the largest factors in the decreased cropland in both the region and bi-state area. While the Saint Louis Regional Foodshed had an increase in total cropland between 1925 and 2007, from 8,983,548 to 9,863,989 acres,[81] between 1982 and 2007, total cropland decreased by 4.7% from 10,348,821 acres to 9,863,989 acres.[82] Missouri and Illinois also saw a drop in cropland acreage over the last forty years, as seen in Graph 4-7.[83]



GRAPH 4-7.
TOTAL CROPLAND ACREAGE IN MISSOURI AND ILLINOIS, 1978-2007

MO NUMBER IN FARMS

IL NUMBER IN FARMS

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[77] *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 905-16; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492-503.

[78] *See 2007 Census of Agriculture - Illinois*, *supra* note 2, at 333-45; *2007 Census of Agriculture - Missouri*, *supra* note 2, at 344-58; *See Quick Stats*, USDA Nat'l Agriculture Stat. Service, http://quickstats.nass.usda.gov (select "Census" under Program; select "Demographics" under Sector; select "Operators" under Group; select "Operators" under Category; select "Operators, (All) – Number of Operators" under Data Item; select "Total" under Domain; select "County" under Geographic Level; select "Missouri" under State, select all Missouri counties in the Saint Louis Regional Foodshed under "County" and select "2007" under year; then select "Get Data"; repeat steps replacing "Illinois" for "Missouri" under State and selecting all Illinois counties in the Saint Louis Regional Foodshed under "County").

[79] Dimitri et al., *supra* note 65.

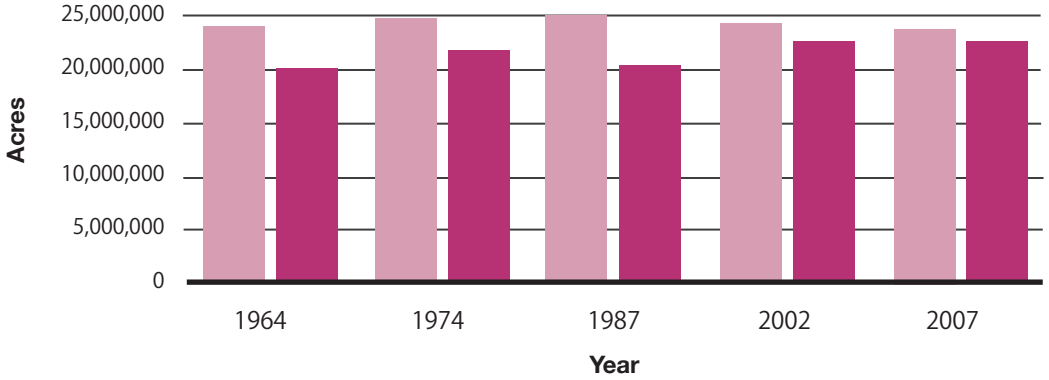
[80] *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 904; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492; *1935 Census of Agriculture – Illinois*, *supra* note 67, at 146; *1935 Census of Agriculture - Missouri*, *supra* note 67, at 262; *1954 Census of Agriculture – Missouri*, *supra* note 67, at 44 (providing land in farms in Missouri for year 1950); *1954 Census of Agriculture – Illinois*, *supra* note 67, at 44 (providing land in farms in Missouri for year 1950); *1987 Census of Agriculture – Missouri*, *supra* note 67, at 7 (providing land in farms in Missouri for years 1964, 1974, and 1987); *1987 Census of Agriculture – Illinois*, *supra* note 67, at 7 (providing land in farms in Illinois for years 1964, 1974, and 1987); *2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (providing land in farms in Missouri in years 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (providing land in farms in Illinois in years 2002 and 2007); *2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (providing land in farms in Missouri in years 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (providing land in farms in Illinois in years 2002 and 2007).

Graphs 4-8 & 4-9 illustrate that although the total cropland acreage decreased in both Missouri and Illinois, the acres of harvested cropland in actually increased slightly between 1964 and 2007 in both Missouri and Illinois.[84]

GRAPH 4-8.
ACREAGE OF TOTAL CROPLAND & CROPLAND HARVESTED IN ILLINOIS, 1964-2007

TOTAL CROPLAND

HARVESTED CROPLAND

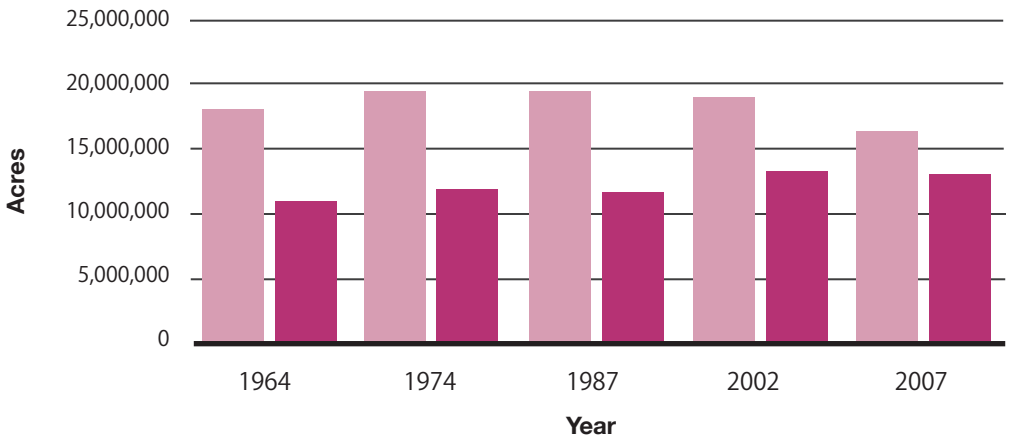


Graphs 4-8 & 4-9 illustrate that between 1964 and 2007, the region's farmers have placed increasingly more acreage into production rather than allowing the land to lay fallow. In 1964, cropland harvested accounted for 62% of Missouri's total cropland and 85% of Illinois's total cropland. In 1987, cropland harvested percentage of total cropland decreased slightly to 60% in Missouri and 80% in Illinois. However, in 2002 harvested cropland made up 70% of Missouri's total cropland and 79% by 2007. Likewise, harvested cropland made up 93% of Illinois' total cropland in 2002 and 95% in 2007. There is a larger amount of our cropland being harvested every year, which means less is lying fallow during the crop production season. Continuous cropping on the same ground exhausts the soil. By failing to let the land rest from crop production, the soil cannot replenish the nutrients it needs to grow crops. Furthermore, after the growing season has ended, nearly all cropland lies fallow from fall until the following spring, leaving the soil exposed and susceptible to erosion. During this "off-season" is when cover-cropping should be emphasized. Winter cover crop plantings of oats, rye, legumes or often mixtures containing turnips or radishes as well, help soils build structure, fertility, organic matter, improve in quality and resist erosion. Saving soil requires farmers to never leave soil bare.

GRAPH 4-9.
ACREAGE OF TOTAL CROPLAND & CROPLAND HARVESTED IN MISSOURI, 1964-2007

TOTAL CROPLAND

HARVESTED CROPLAND



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81 *See 1925 Census of Agriculture – Missouri*, *supra* note 67, at 905-16; *1925 Census of Agriculture – Illinois*, *supra* note 67, at 492-503; *2007 Census of Agriculture - Illinois*, *supra* note 2 at 346-58; *2007 Census of Agriculture - Missouri*, *supra* note 2 at 374-88.

82 *See 1987 Census of Agriculture - Missouri*, *supra* note 67, at 215-29 (providing total cropland acreage in every Missouri county for the year 1982); *1987 Census of Agriculture - Illinois*, *supra* note 67, at 205-17 (providing total cropland acreage in every Illinois county for the year 1982); *2007 Census of Agriculture - Illinois*, *supra* note 2 at 346-58 (providing total cropland acreage in every Illinois county for the year 2007); *2007 Census of Agriculture - Missouri*, *supra* note 2 at 374-88 (providing total cropland acreage in every Missouri county for the year 2007).

83 *See 2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (providing total cropland acreage in Missouri for years 1978, 1982, 1987, 1992, 1997, 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (providing total cropland acreage in Illinois for years 1978, 1982, 1987, 1992, 1997, 2002 and 2007).

84 *See 1987 Census of Agriculture - Missouri*, *supra* note 67, at 7 (providing acreage for total cropland and cropland harvested in Missouri for years 1964, 1974 and 1987); *1987 Census of Agriculture - Illinois*, *supra* note 67, at 7 (providing acreage for total cropland and cropland harvested in Illinois for years 1964, 1974 and 1987); *2007 Census of Agriculture - Missouri*, *supra* note 2, at 7 (providing acreage for total cropland and cropland harvested in Missouri for years 2002 and 2007); *2007 Census of Agriculture - Illinois*, *supra* note 2, at 7 (providing acreage for total cropland and cropland harvested in Illinois for years 2002 and 2007).

This data illustrates that while we have a lot of farmland and we are fortunate to have relatively good quality soil, how we manage our land impacts our ability to sustain crop production. While outside the scope our report, we recognize that our soil resources are vulnerable to exploitation and that good stewardship is essential to maintain fertility and productivity in agricultural lands long term.

"The United States Department of Agriculture estimates that it takes five hundred years to produce an inch of topsoil. [Charles] Darwin thought English worms did a little better, making an inch of topsoil in a century or two. While soil formation rates vary in different regions, accelerated soil erosion can remove many centuries of accumulated soil in less than a decade."

David Montomgery,
Dirt: The Erosion of Civilizations 24 (2007)

With 9.86 million acres of cropland, an increase in urban development, a decrease in "land in farms," and a growing population (from 2,471,317 in 1910 to 4,074,725 in 2010),[85] three questions remain for the Saint Louis Regional Foodshed,

What are our farmers growing now?

Where does our food come from?

[85] *See* Richard L. Forstall, U.S. Bureau of the Census, *Illinois Population of Counties by Decennial Census: 1900 to 1990* (1995), http://www.census.gov/population/cencounts/il190090.txt; Richard L. Forstall, U.S. Bureau of the Census, *Missouri Population of Counties by Decennial Census: 1900 to 1990* (1995), http://www.census.gov/population/cencounts/mo190090.txt; *County Totals: Annual Population Estimates*, U.S. Census (Apr. 5, 2012), http://www.census.gov/popest/data/counties/totals/2011/CO-EST2011-01.html (select "Missouri" excel spreadsheet and select "Illinois" excel spreadsheet; then view April 1, 2010 Census population data in the Missouri and Illinois excel spreadsheets for the counties in the Saint Louis Regional Foodshed).