

Food Insecurity & Urban Agriculture

Executive Summary

In Missouri, 11.5% of households are considered food insecure because they have limited or uncertain access to affordable and nutritious food to maintain an active, healthy lifestyle. Food insecurity can cause or worsen malnutrition, mental health disorders, and diet-related chronic diseases such as hypertension, cancer, and diabetes. Income, housing and race are strong predictors of food insecurity. Geographical regions where households have limited access to healthy and fresh food are called food deserts. Urban agriculture can provide a source of healthy produce, increase healthy food knowledge, and promote engagement within food insecure communities.

Science Highlights

- Food insecurity is strongly correlated with nutrient deficiency, chronic illness and mental health disorders.
- Low-income households experience the greatest rate of food insecurity.
 - Hispanic and Black households experience a disproportionately higher rate of food insecurity compared to White households.
- Urban agriculture aims to reduce food insecurity by engaging the community in local food production in the form of urban gardens and farms.
 - There is not enough research to determine the extent to which urban agriculture reduces food insecurity in low-income neighborhoods.

Limitations

- Additional analysis on urban agriculture is needed to best implement urban gardens and farms in Missouri to ensure low-income and marginalized communities benefit.
- Large investments in capital such as land rent and time are required to develop and maintain urban agriculture programs.

Research Background

Food insecurity

The United States Department of Agriculture (USDA) [defines food insecurity](#) as “limited or uncertain availability of nutritionally adequate and safe foods, or limited or uncertain ability to acquire acceptable foods in socially acceptable ways.”

This Community Science Note was prepared by the Missouri Local Science Engagement Network (LSEN), a partnership between MOST Policy Initiative and the American Association for the Advancement of Science (AAAS) aimed to elevate science in policy conversations in Missouri. For more information, contact Jasmine Yu - jasmine.yu94@gmail.com or MOST Policy Initiative- info@mostpolicyinitiative.org. This was prepared on 12/8/21.

The [USDA Food Access Research Atlas](#) considers several elements that determine food access:

- Household income
- Distance from stores that provide healthy & affordable food (e.g., grocery stores, supermarkets)
- Availability of a personal vehicle or public transportation

Around 10.5% of households in the United States experienced food insecurity at some point in 2020. Food insecurity is strongly associated with income; 35.3% of households with annual incomes below the poverty line experienced food insecurity in 2020. Hispanic and Black households also experience disproportionately higher food insecurity with rates of 17.2% and 21.7% respectively, compared to White households (7.1%).¹

On average, 11.5% of Missouri households were classified as food insecure between 2018-2020.¹ Almost half of the food insecure individuals experienced “very low food insecurity,” or multiple instances of reduced food intake, altered eating habits and hunger. The [Missouri Hunger Atlas](#) classifies food insecurity needs based on food uncertainty and access to public food assistance programs.² While both rural and urban counties experience food insecurity, the highest concentration of food insecure households in Missouri is in Southeast Missouri (**Figure 1**).²

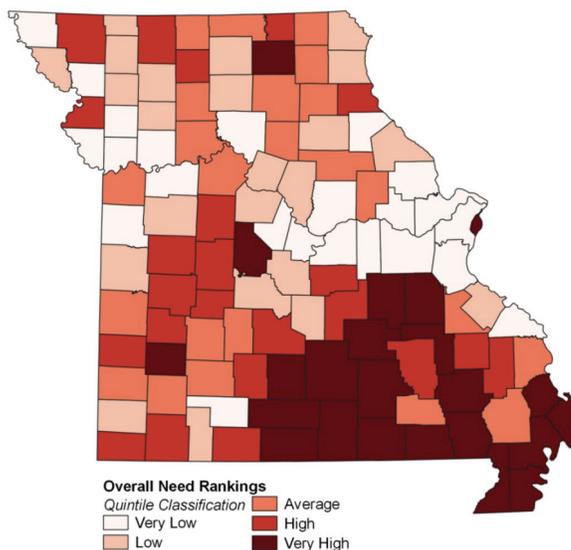


Figure 1. Overall need rankings by county, based on the 2019 Missouri Hunger Atlas

Health & Economic Consequences of Food Insecurity

Food insecurity impacts health, social and economic outcomes. Children in food insecure households are more likely to experience a range of negative health outcomes, including anemia, asthma, and mental health disorders.³ In non-senior adults, food insecurity is strongly predictive of diet-related chronic illnesses, including hypertension, coronary heart disease, cancer, diabetes, and kidney disease.^{3,4} The negative health impacts associated with food insecurity are associated with direct (e.g., increased healthcare costs) and indirect (e.g., lost productivity) costs.⁵

Food Deserts

The USDA characterizes low-income census tracts with limited access to supermarkets or large grocery stores as food deserts.⁶ In urban areas, “limited access” is defined as at least 33% of the census tract living more than 1 mile from a supermarket or large grocery store; food deserts in

rural areas exist where at least 33% of of the tract lives more than 10 miles from a supermarket or large grocery store. While people living in food deserts have an increased risk of experiencing food insecurity, not every household within a food desert is classified as food insecure. In addition to distance from the nearest grocery store, access to a personal vehicle or public transportation contribute to whether or not a geographical region is a food desert.^{6,7}

Missouri Legislative Background

During the 2021 legislative session, state lawmakers introduced several bills to incentivize grocery store expansion ([HB 596](#), [HB 1412](#), [SB 188](#)) and urban agriculture ([HB 720](#), [SB 82](#)) in food deserts. Similar bills have also been pre-filed for the 2022 legislative session ([HB 1570](#), [SB 717](#), [SB 790](#)). These bills propose offering tax credits to offset the costs of establishing a full-service grocery store or urban farm in a food desert in order to reduce the geographic barriers to food access in Missouri.

Urban Agriculture

Urban agriculture is the growing and raising of food crops and animals in an urban setting for the purpose of feeding local populations.⁸ Goals of urban agriculture include increasing nutritional knowledge and awareness of local produce, providing supply of fresh fruits and vegetables, improving the health and well-being of residents, and providing a source of income for producers.^{9,10}

While urban farms have been successfully started in metropolitan areas across Missouri, there is not enough research to determine the extent to which urban agriculture reduces food insecurity in low-income neighborhoods.¹¹ Additionally, there is evidence that highly educated, high-income individuals are the most likely to participate in urban farming, which suggests that the financial benefits of producing crops in urban farms may not have a large impact on household income for low-income families who lack the time and capital for development and maintenance.^{9,12} Additional analysis of urban farming is warranted to determine how urban gardens can be best implemented to positively impact food security and health in the highest-need communities. More research on effective resource usage, such as water, soil and fertilizer should also be done to prevent unintended environmental and health consequences.¹³ Food production may also vary seasonally depending on regional climate and resources, which can lead to fresh produce being offered only during certain times of the year.

Compared to grocery store expansion, urban agriculture aims to address both the geographic and income-based drivers of food insecurity in food deserts. In addition to the distance from healthy food, purchasing power has been linked to diet-related health outcomes in many food deserts.¹⁴ Public assistance nutrition programs like the Supplemental Nutrition Assistance Program (SNAP) and Farmers' Market Nutrition Programs have been shown to be effective tools to improve nutrition and health outcomes in food insecure households.^{3,15}

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