

ISK CLIMATE CHANGE & HEALTH SERIES

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Food
(In)Security
Issue



What do we mean by 'food security'?

My favorite definition of food security comes from the 1996 World Food Summit and is still the preferred definition used by the World Bank. This definition, along with the six dimensions of food security, can be found in the figure below.

I believe this is the most robust definition for many reasons. First, it's very thorough: not only do we need sufficient food, but our food must be safe (i.e. grown, raised, processed, and eaten in sanitary conditions) and nutritious enough to meet our dietary needs. Second, it considers food preferences, which



Relationship between the definition of food security and its six dimensions [HLPE, 2020]

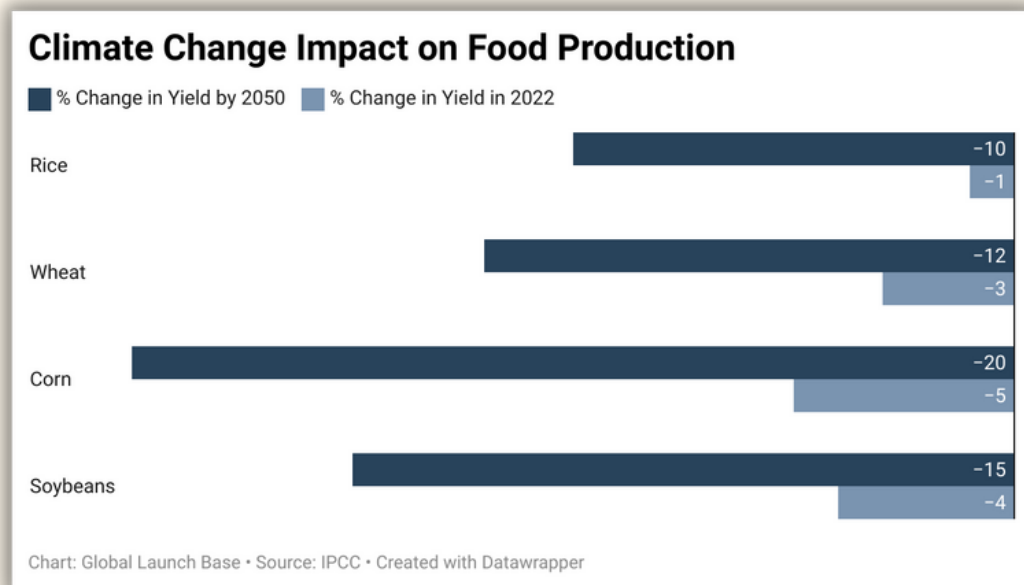
can arise from many things, such as health conditions, personal values, and, often, from culture. This treats food not only a physical necessity, but as a socially, culturally, and emotional valuable part of life. Third, this definition recognizes the right of every person to have an active and healthy life, and recognizes the crucial role of food in achieving that. Finally, and perhaps most relevant to our conversation about climate change, this definition acknowledges that “access” is based on the existence of food, our proximity to it, and the social determinants in our lives—after all, it makes no difference if we live next door to beautiful, healthy food if we can't afford to buy it, and it makes no difference if we have a lot of money if there's no nutritious food to be found.

Food security, climate change, & Kalamazoo

At ISK, many of us are probably familiar with food *insecurity* as a social issue, and rightly so—food insecurity in Kalamazoo generally occurs when individuals cannot afford enough nutritious food, or when access to nutritious food is limited because it is too far away for

an individual to reasonably and regularly obtain it. We don't tend to have food shortages in Kalamazoo. But as climate change continues to accelerate, we might.

Climate change is known as a "hunger risk multiplier" because of the way it increases extreme weather events that displace people and destroy resources, as well as its negative impact on global food production. Take the bar chart below, for example, which uses data from the Intergovernmental Panel on Climate Change (IPCC). It shows that, despite decades of growth in production, in 2022 our four major staple crops—rice, wheat, corn, and soybeans—saw decreased yields, and that these yields are projected to drop astronomically by 2050 if we don't change our methods. Now, 1% might not seem like a lot, but to put it in perspective, the

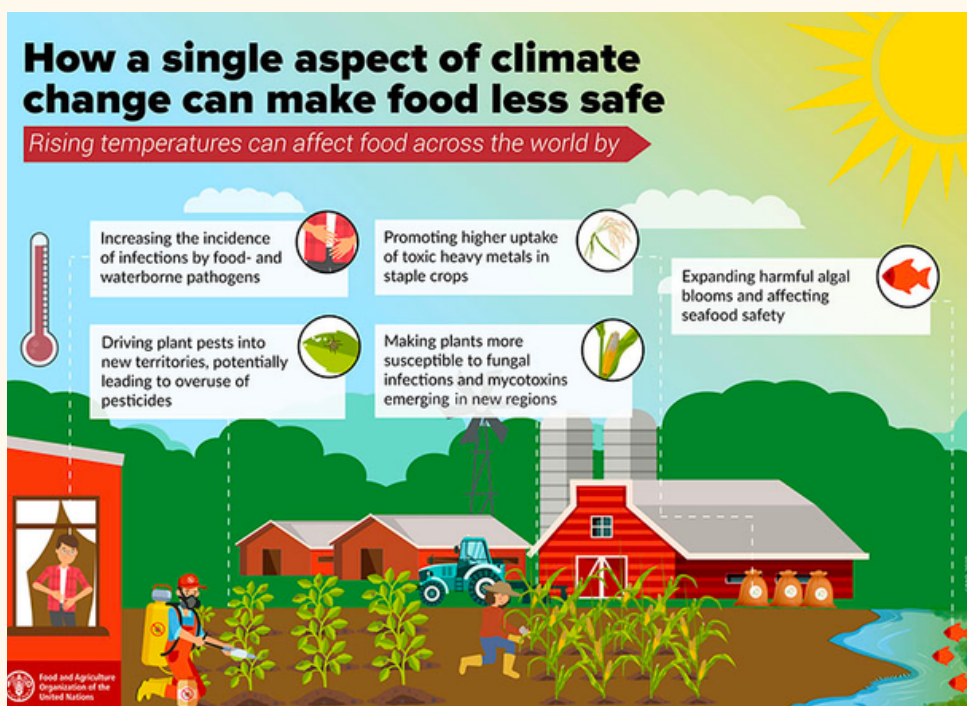


world produced 787 million metric tonnes of rice in 2021 [FAO, 2022], so a 1% decrease means that 2022 yielded 7.87 million fewer tonnes of rice. We produced about the same amount of wheat as rice in 2021 [FAO, 2022], so a yield drop of 3% means 2022 missed over 23 million tonnes of wheat— that's over 50 billion pounds.

While these losses can have socio-political causes—such as the drop in Ukrainian wheat and corn production due to the war—international reports point overwhelmingly in one direction: extreme weather events, drought, and high heat worsened by climate change are to blame [Eurostat, 2023; Gro Intelligence, 2023].

So, what does this mean for food security in Kalamazoo? First, in the world of food markets, when yields go down, prices go up. We've probably all noticed higher prices in the grocery store, on everything from breads and pastas to rice to tofu to cooking oils—a direct result of lower yields, which are a

direct result of climate change. Some of us might be able to dig a little deeper into our pockets and pay the price difference, but for some of us, higher prices can mean choosing less nutritious alternatives or skipping meals altogether. Second, climate change can impact the safety of our food, an example of which can be found in the graphic to the right. Individuals who become sick from unsafe food can experience health



Relationship between rising temperatures and food safety [FAO, 2020]

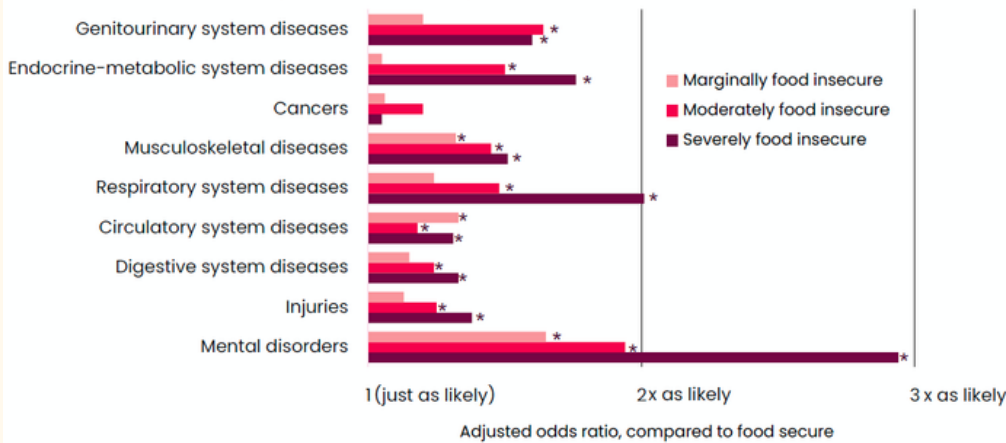
and livelihood impacts. Third, instances of extreme weather events, particularly flooding, are projected to increase in Kalamazoo, which can lead to food insecurity due to displacement. Finally, while food scarcity doesn't usually touch us here in Kalamazoo yet, if yields continue to drop as projected, we're likely to experience food shortages in the coming decades.

Health impacts of food insecurity

We likely all have a sense of what happens to our health when we don't get enough nutritious food. The figures below contain some interesting data related to food insecurity and health.

Food-insecure adults are more likely to be admitted to acute care for a wide array of reasons.

Adjusted differences in the likelihood of acute care admission among Canadian adults (n=403,620) by food insecurity status (pooling data from CCHS 2005-17)



Adjusted for respondent age, sex, ethnicity, immigrant status, smoker status, alcohol consumption history and acute care admission in year prior to interview; household sociodemographic characteristics; province/territory; survey cycle. * statistically significant at $p < 0.05$.

Adapted from: Men, F., Gundersen, C., Urquia, M.L., & Tarasuk, V. (2020). Food Insecurity Is Associated With Higher Health Care Use And Costs Among Canadian Adults. *Health Affairs*, 39(8), 1377-1385.

One of the most striking things about these figures is the clear and severe impact of food insecurity on mental health, with instances of mental disorders almost three times as likely in a severely food insecure adult compared to a food secure adult.

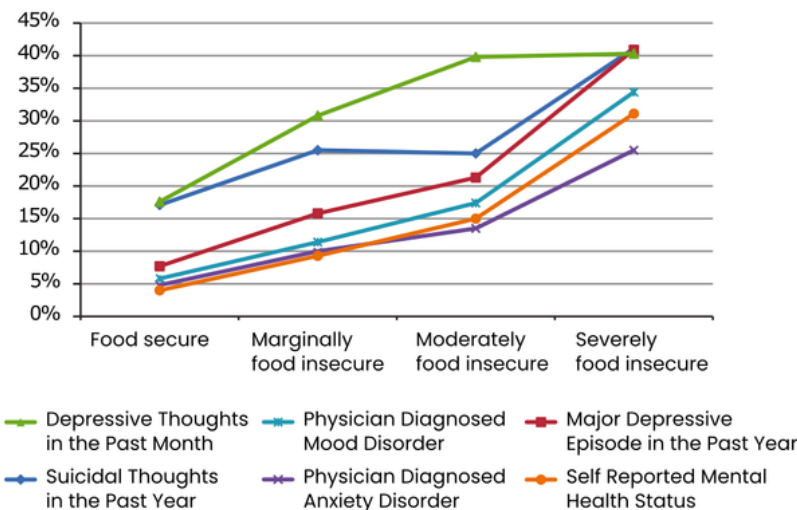
What these figures don't show is the severe and sometimes irreversible damage food insecurity can do to young bodies. Food insecure children can experience delays or deficits in physical and cognitive functioning, including social and emotional skills.

Pregnancy complications in food insecure mothers can also impact birth and infant development. Food insecure individuals can also become caught in a cycle where dietary behaviors worsen due to food insecurity, leading to chronic illness, which can cause higher healthcare costs and lower employability, which can worsen food security [Urban Footprint, 2021].

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Adults living in more severely food-insecure households are at greater risk of poor mental health than those living in food secure households.

Adverse mental health outcomes reported by Canadian adults (18-64 years of age), by household food insecurity status



Data Source: Statistics Canada, Canadian Community Health Survey (CCHS), 2005-2012

Adapted from: Jessiman-Perreault, G., & McIntyre, L. (2017). The household food insecurity gradient and potential reductions in adverse population mental health outcomes in Canadian adults. *SSM - Population Health*, 3, 464-472.

Actions to take

It may seem like issues of food security are at such a large scale that individual action can't make a difference, but this simply isn't true. Below are some examples of things you can do to help fight food insecurity, both on your own and with individuals you serve.

1. **Reduce food waste** - The less food is wasted, the lower our environmental footprint, which can help us do our part in reducing climate change. When we eat all of the food we purchase, we're also likely to purchase less total food over time, which protects our global food resources. Talk to your clients about their level of food security, their diet, and about reducing their food waste.
2. **Support local food banks and community gardens** - In Kalamazoo, our food banks make a world of difference to our community, and they often help reduce food waste by utilizing food that would otherwise be wasted. The downside is that food banks often can't supply fresh fruits and vegetables due to short shelf life and food safety concerns. That's where community gardens come in! These can be a great source of fresh produce in the summer and fall, and can also help get individuals involved in food growing.
3. **Eat a diverse and sustainable diet** - The more diversity we demand from the food system, the more diverse it will be. Moving away from reliance on staple crops can build our resilience to future food system "shocks," and eating more sustainably can help fight climate change by reducing food emissions. The [Planetary Health Diet](#) is a great standard for a sustainable plate, and uses a handy plate graphic that is easy to share with others.
4. **Educate clients on Michigan's Double-up Food Bucks program** - Bridge Card holders are matched dollar-for-dollar on their fresh produce purchases, up to \$20 a day. This helps combat socioeconomic drivers of food insecurity, and also encourages individuals to eat a more diverse and sustainable diet.
5. **Grow your own food!** - The more food we produce in our homes and neighborhoods, the more food resilient our communities are. If you've had a dream of starting your own garden—or even a new community garden—now is the time!
6. **Fight climate change** - Data shows us that climate change negatively impacts food security in a variety of ways. Any advocacy or action to fight climate change will positively impact food security not only here in Kalamazoo, but across the globe.
7. **Keep advocating for equity** - At its heart, food insecurity is largely an equity issue. Any work we do here at ISK to support equity will impact the fight against food insecurity.

Recommended Resources

- [Plate and the Planet from The Nutrition Source](#)
- [What You Need to Know About Climate Change and Food Security](#)
- [How Climate Change Increase Hunger—and Why We're All at Risk](#)
- [Climate Matters in Michigan](#)
- [Community Gardens Help Michigan Adapt to Climate Change](#)
- [The Food Fix \(blog by MSU\)](#)



Let's talk

This month, talk to your colleagues about food security:

- Have their loved ones or clients ever experienced food insecurity?
- Do they notice health or mental health patterns in food insecure individuals? How do they help?
- Can they think of a time climate-related events impacted food production in Michigan?
- Are they involved in any food security action?