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PREPARING FOR FOOD SYSTEM RESILIENCY IN OHIO

POLICY AND PLANNING LESSONS FROM COVID-19



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TABLE OF CONTENTS

EXECUTIVE SUMMARY	i
INTRODUCTION	1
BACKGROUND.....	2
Ohio’s Food System	2
Export-Based State Agriculture Sector	2
Acute and Chronic Food Insecurity	3
COVID-19’s Impact on Food Service Labor.....	3
PROJECT GOALS	3
Review Ohio EMA Emergency Support Function Plans	3
Agency Contact Interviews	4
Policy Field Mapping.....	4
OUTPUTS AND FINDINGS.....	4
Products and Resources	4
Contextualizing COVID’s Impact on Ohio’s Food System.....	5
KEY TAKEAWAYS	8
NEXT STEPS	11
Short-term	11
Medium-term.....	12
Long-term.....	12
REFERENCES	13



EXECUTIVE SUMMARY

COVID-19 and its associated impacts highlighted notable systemic weaknesses across the food system in Ohio and the U.S. at large. **These impacts emphasize the need to better understand the roles of and relationships between public sector stakeholders and partners in the food system in order to effectively plan for and respond to such emergencies.** As such, Ohio State University (OSU) and the Ohio Emergency Management Agency (Ohio EMA) partnered to explore how Ohio agencies and organizations responded to the pandemic and to map the policy environment around food and agriculture in Ohio. This work involved reviewing Ohio EMA emergency response plans related to food and agriculture, interviewing key stakeholders, documenting important policies, and mapping administrative responsibility for these policies. The following summarizes key takeaways concerning the impact of the pandemic on the food system, characteristics of the policy environment that hindered effective response, and recommended policy changes to better address similar future crises.

Food System Impacts

Supply chains were slow to adapt to consumer demand transitions from institutional to in-home use. Food suppliers and distributors often had trouble adapting to immediate shifts in purchasing as people purchased more goods for at-home use because of the need to change packaging sizes, etc. for at-home use. Transportation bottlenecks further complicated the process of shifting markets, contributing to short-term shortages of products at the point of purchase as companies rushed to meet new market demands. In addition to creating shortages for consumers, some Ohio producers were unable to get their products to market or donation, resulting in wasted product and lost agricultural income even as food insecurity in the state rose dramatically.

Inadequate support for the health of “essential workers” threatened the stability of food supply chains. In an effort to maintain critical supply chains, food system workers (e.g. farm workers, meat packing facility workers, grocery store retail workers, etc.) were classified as “essential” and continued to work even during stay-at home

orders. These workers were often at significant risk of infection, and COVID-19 outbreaks in food processing facilities threatened the health and wellbeing of these workers and forced some facilities to shut down, leading to further disruptions in the supply lines.

The pandemic decreased the ability of Ohioans to purchase food. Layoffs and work restrictions—particularly in the service sector—immediately reduced the income of many Ohioans. While expanded unemployment assistance later helped ameliorate some of these effects, the immediate impacts of lost income contributed to food insecurity, forcing many Ohioans to resort to the emergency food system. Food insecurity was further exacerbated by price volatility resulting from supply chain disruptions. While prices fell for certain commodities, such as corn, prices for meat, milk, and cheese, other products surged. Price spikes for food staples decreased the overall purchasing power of consumers.

Administrative Barriers to Pandemic Response

Emergency preparedness plans approach disasters as relatively isolated, short-term problems. Federal, state, and local emergency management agencies have historically conceptualized disasters as highly localized events, with a primary focus on emergency feeding (e.g., weather events, etc.). Associated planning and exercise scenarios worked on the assumption that food assistance could be shipped in from adjacent counties or regions and that emergency supplies of less than a week would be sufficient for individual households to weather these disasters. Contrary to these assumptions, COVID-19 disrupted supply chains at every level from production to consumption across all supply chains throughout the United States for extended periods of time.

Administrative capacity and lack of coordination hindered short-term policy responses to the pandemic. The administrative environment around food and emergency assistance complicated effective responses. Food and agriculture program management involves dozens of public and private organizations, often with little formal communication and reporting relationships between them. Siloed programmatic responsibility

complicated the ability of state agencies to coordinate services.

Federal-state division of authority for emergency food programs complicated effective coordination. In many cases, authority for program initiation and implementation began at the federal level. Division of responsibility for food assistance between federal and state level administrators created an additional layer of administrative complexity that hindered effective response to pandemic conditions. Split administrative responsibility also created administrative hurdles for state-level managers.

Ohio state agencies historically not considered central to food systems became pivotal. The systemic impacts of COVID on the food system highlighted the importance of agencies that are historically not involved directly in food or agriculture, such as transportation, which impacted shipping of food, and social service agencies impacted by increased social needs such as increases in domestic violence which can be triggered by disagreements over food.

Recommended Next Steps

Invest in a diversified food system. An early insight from the pandemic was that shorter supply chains (e.g., directly to consumers) were often better positioned to adapt to changing market conditions compared to producers only selling into wholesale and commodity markets. Ensuring the viability and robustness of shorter food supply lines will be critical to future system-wide emergency planning.

Develop coordinated emergency preparedness plans to coordinate response to systemic crises. The pandemic impacts emphasize the importance of considering the broader food system and the interactions between various organizations and agencies in order to foster a food system resilient to disasters and disruptions.

Develop greater inter-agency and inter-organizational connectivity and communication. Preparing for future crises like COVID-19 step will require fostering connectivity and coordination among state-level agencies and organizations in order to improve coordination and system-wide awareness among program administrators.



INTRODUCTION

The development of COVID-19 in 2020 and its associated impacts and policy responses highlighted notable systemic weaknesses across the food system in Ohio and the U.S. at large. Despite classification of food and agricultural work as “essential” by the U.S. federal government early in the pandemic, the unique nature of the crisis—which affected humans at every point in the food system—resulted in system-wide ripple effects in the food system.

On the agricultural producer end of the system, sudden shifts in food demand from institution-based to in-home consumption due to quarantine requirements complicated the ability of agricultural producers, processors, and distributors to get product to consumers. Meanwhile, business closures and associated layoffs forced more Ohioans to seek food assistance, overwhelming emergency food programs. These and numerous other challenges exacerbated long-standing problems in the food system, such as administratively complicated and overburdened food security programs and rigid supply chains that allow for the movement of large volumes of food in times of prosperity but struggle to adapt to sudden shocks.

The underlying problems associated with such food system challenges are not new. Yet, the unique nation-wide system-wide impacts of COVID-19 elevated their prominence and demonstrated their implications for feeding a population. Furthermore, federal, state, and local Emergency Management (EM) preparations provide minimal support for such crises. **Disaster and pandemic plans include minimal guidance or training scenarios that integrate long-term food system policies across multiple levels of government to better respond to nationwide challenges like COVID-19 because they tend to focus on mass feeding and bulk distribution of food and supplies in a localized event, not systemic failures of the food distribution system.** Unlike other emergency scenarios that may impact a specific geographic region, particular nodes in the supply chain, or are limited in time, COVID-19 altered nearly every facet of the national food system in a matter of days and many these impacts continued well after the initial onset of the emergency.

The development of COVID-19 and associated responses at the state and federal level had widespread impacts, both on the food supply chain and the policies and programs intended to support Ohioans during emergency situations. **The unique characteristics of the pandemic**

highlighted the need to better understand the roles of and relationships between public sector stakeholders and partners in the food system in order to effectively plan for and respond to such emergencies.

Resulting from a partnership between Ohio State University (OSU) and the Ohio Emergency Management Agency (Ohio EMA), the purpose of this report is to aid future emergency response planning for similar scenarios by documenting the broader food security policy and administrative landscape in the State of Ohio. Assessing the Ohio food policy landscape involved reviewing Ohio EMA emergency response plans related to food and agriculture, interviewing key stakeholders, documenting important policies, and mapping administrative responsibility for these policies. This document:

1. outlines the motivations for this process,
2. summarizes the process of exploration,
3. describes the key products resulting from this exploration, and
4. outlines potential uses for training and recommendations for future activities.

The purpose of this report is to inform state emergency management responses in order to better prepare for and mitigate medium- and long-term negative social and economic impacts resulting from future disasters and disruptions.

BACKGROUND

Ohio's Food System

Food systems are the inter-connected network of activities, resources, industries, public and private stakeholders, and policies that play a role in the production, processing, distribution, consumption and waste disposal of food. To understand COVID-19's wide ranging impacts on Ohio's food system it is important to understand how food and agriculture are integrated into Ohio's economy.

While Ohio is an agriculturally important state, it paradoxically also has a relatively high rate of food insecurity. Changes to the food and agricultural

economy or to the availability and quality of jobs in Ohio's food and agriculture sector have profound implications for Ohio's larger economic and social well-being.

Prior to the pandemic, Ohio's agricultural and food production, including restaurants and bars, accounts for \$47.5 billion in value-added sales and one-in-eight jobs in the state. These numbers represent over seven percent of the gross state product (GSP) or \$1 in every \$13 of Ohio's GSP. This production exceeds the agricultural and food production contribution to national GDP of 5.1 percent.

Within Ohio:

- Food processing was the largest contributor to food and agriculture production, providing \$15 billion in value-added sales (2.4 percent of GSP in Ohio compared to 2.1 percent of national GDP).
- The wholesale and retail sectors followed with \$12 billion (1.9 percent of GSP in Ohio compared to 1.0 percent of national GDP).
- Farming contributed \$4 billion (0.6 percent of GSP in Ohio compared to 1.0 percent of GDP nationally).

Export-Based State Agriculture Sector

Agriculture is a significant economic sector in Ohio. According to the U.S. Department of Agriculture (USDA) Census of Agriculture, in 2017 Ohio reported¹:

- The state is home to 77,000 farm operations
- A total of \$9.3 billion in total agricultural sales
- Grain products, most notably corn and soybeans, made up nearly half (48.7%) of all agricultural sales, followed by poultry (11.6%), hogs (10.8%), milk (10.7%), and cattle (7.3%).
- The state is consistently among the top 15 states nationally in terms of agricultural production.

Yet, most of this agricultural production does not directly serve Ohio consumers. In 2017, Ohio farmers and ranchers earned \$79.4 million in revenue from selling agricultural products directly to consumers, and another \$118.2 million through what are called "intermediated" markets (i.e.,

¹ Florence Becot et al., "The Status and Changing Face of Ohio Agriculture," (Columbus, OH: Ohio State University, 2020).

grocery stores and restaurants) according to the USDA Census of Agriculture. The sales of products either directly or indirectly to Ohio consumers constitute only 2.2% of total agricultural sales. *Thus, while some of Ohio's agricultural production does serve Ohio consumers, like many other states, Ohio is integrated into national and global supply chains as both an exporter and importer of food.*

Acute and Chronic Food Insecurity

Despite the significance of its food and agriculture sector, Ohio struggles with chronic and acute food insecurity. Prior to the 2020 COVID-19 pandemic,

- 13.9% of people in Ohio were considered food insecure in 2018, surpassing the nationwide rate of 11.5%.
- Additionally, 18.9% of children in Ohio were considered food insecure before the pandemic, compared to 15.2% nationally.²

The first months of the pandemic dramatically increased these numbers. **By June of 2020, approximately 23% of people in Ohio were classified as food insecure.**³

COVID-19's Impact on Food Service Labor

COVID-19 negatively impacted large swaths of the economy, especially restaurants, bars and food service outlets. As individuals were laid off, they faced an increased risk of food insecurity.

The restaurant and bar sector is a labor-intensive service sector with a large portion of the value-added generated by labor wages. Prior to the pandemic, Ohio's food services sector (restaurants and bars) had shown strong growth in employment and value-added since 1994. Direct value added by restaurants and bars, driven by growth in population and consumer income, has increased from 1.9% to 2.4% of GSP. Restaurants and bars employ 496,342 Ohioans. This number has increased by 37.5% since 1994. The sector contributed \$14.5 billion to Ohio's GSP in 2015.

PROJECT GOALS

Given the disruptions in the food system – and Ohio EMA's role in emergency response planning – project partners at OSU and Ohio EMA determined that a critical starting place for preparing for similar future emergencies was understanding where and how food-related policies intersect with state-level agencies and organizations. The objective of this project was to help position Ohio EMA to respond to similar future emergencies by:

- a. Contextualizing the impact COVID-19 had on Ohio's food system,
- b. Understanding the role of Ohio state government agencies and nonprofits involved with food system-related programs and policies, and
- c. Mapping how food-related policies and programs interact with these state-level agencies and organizations and visualizing their relationships.

Assessing the food policy environment in Ohio involved three principal methods of exploration: reviewing Ohio EMA emergency support function plans, interviewing key state-level stakeholders, and mapping the policy fields for select policies and programs.

Review Ohio EMA Emergency Support Function (ESF) Plans

We began by reviewing publicly accessible Ohio EMA emergency response plans with connections to food and agriculture, including ESF #6 (Mass Care), ESF #7 (Resource Support and Logistics), and ESF #11 (Food and Agriculture)⁴. Review of these documents provided a foundational understanding of where and how Ohio EMA emergency response plans intersect with: (a) food and food policy and (b) other agencies and/or organizations with significant relationships with food/food policy.

² For more information on food insecurity, see the Feeding America food insecurity map (map.feedingamerica.org/county/2017/overall/ohio).

³ United States Census Bureau, "Household Pulse Survey," ed. United States Census Bureau (Washington, D.C. 2021).

⁴ Ohio Emergency Management Agency. "State of Ohio Emergency Operations Plan." https://ema.ohio.gov/EOP_Overview.aspx Accessed 9/2020.

Agency Contact Interviews

A crucial step in developing in-depth understanding of the Ohio food policy environment were interviews with 30 agency and organization contacts working at the state level in Ohio.

Interview participant identification started with an initial list of key contacts provided by Ohio EMA partners and from a review of Ohio EMA emergency planning documents listed above. Subsequent interview participants were identified using a snowball sampling methodology wherein interview participants were asked for other potential contacts relevant to the topics discussed during the interview. In addition to background on the interview participant's professional duties, interviews focused on the following topics:

- Which food policies/programs intersect with the interviewee's agency/organization, and in what ways
- The interviewee's role in and perceptions of key challenges for these policies/programs
- The impact(s) of COVID-19 on these policies/programs (i.e., need/demand for these policies/programs, the functioning and/or administrative processes, etc.)
- Key public and private partners involved in the implementation of these policies/programs
- Interest in continuing to be part of future conversations on emergency food planning going forward
- Other potential interview participants

These interviews provided background on food policies and helped the research team: (a) identify key policies and programs to include in policy mapping, (b) understand the administrative and inter-organizational processes and connections involved with implementing these policies/programs, and (c) identify other state-level contacts.

Policy Field Mapping

The final method of exploration, policy field mapping, aimed to expand our understanding of the administrative and financial relationships between the initiating agency/organization of a particular

food policy and the target population of that policy. The policy mapping employed methodology developed by Sandfort and Moulton,⁵ which outlines an approach to visualizing administrative, financial, and political relationships associated with the implementation of a policy at the national, state, and local levels. Mapping drew on the information about policies, agencies, and administrative processes gathered from interviews and document reviews. Additionally, this information was paired with information from state, federal, and nonprofit webpages that offered information about specific characteristics of food policies and programs. This information was used to develop a series of policy/program-specific visualizations of the administrative and financial relationships involved in that policy/program's implementation.

OUTPUTS AND FINDINGS

Products and Resources

The following section describes the food policy/program database and policy field maps that resulted from the exploration and documentation of Ohio food policies. Additionally, we discuss the key takeaways from these products, and outline potential uses.

Food Policy/Program Database. The Ohio database of food policies includes both federal policies that are administered by State of Ohio agencies and/or state-wide nonprofits (e.g., the Ohio Association of Foodbanks) and policies that originate from State of Ohio agencies or statewide nonprofits. The database includes a description of the type of each policy (e.g., food security/nutrition, agriculture producer support, etc.) and the target population of the policy (i.e., who is impacted by it), notes on the originating institution, and the state-level agency/organization and specific office that is responsible for administering the policy. Additionally, the database includes URLs for state and, where applicable, federal agency/organization webpages about each respective policy/program. This database is available through Ohio State University.⁶

⁵ Stephanie Moulton and Jodi R Sandfort, "The Strategic Action Field Framework for Policy Implementation Research," *Policy Studies Journal* 45, no. 1 (2017); Jodi Sandfort and Stephanie Moulton, *Effective Implementation in Practice: Integrating Public Policy and Management* (John Wiley & Sons, 2014).

⁶ Project website available at u.osu.edu/ccwl/projects/ohio-emergency-management-and-food-systems.

Policy Field Maps. The policy field mapping diagrams of specific policies/programs (or where applicable sets of related policies/programs) depict where and how policies/programs intersect with various stakeholders at the federal, state, and local levels. These diagrams depict the flows of funding and administrative responsibility from the originating institution to the impacted target population, as well as supporting agencies/organizations.

Figure 1 presents an example policy field map displaying three connected policies/programs; the Supplemental Nutrition Assistance Program (SNAP), SNAP-Ed – an education program to support SNAP recipients in understanding how to effectively use SNAP benefits – and Pandemic-EBT, which is the increased and expanded benefits access for SNAP authorized by COVID-19 federal relief bills. The map depicted in Figure 1 indicates the authorizing legislation, particular actors impacting that legislation, and where/how agencies and organizations are involved in implementing the policy on its way to the target population starting at the federal level. Note that not every policy/program map will have all of these components (e.g., authorizing legislation) because not all policies or programs have all components. These maps help to visualize the agencies/organizations as well as the flows of responsibilities involved in implementing policies/programs.

These products could be used in several ways, including:

- Agency staff training scenarios
- Identification of potential gaps and opportunities for policies/programs and EMA response in relation to the food system
- Developing greater awareness among Ohio State agencies about the need to communicate and coordinate emergency food system planning

Contextualizing COVID’s Impact on Ohio’s Food System

The COVID-19 pandemic affected all aspects of the food system, from production to distribution

and consumption, and workers across the food supply chain. Some of these impacts are highlighted below.

The pandemic disrupted Ohio food supply chains and increased the vulnerability of workers along the food supply chain.

One particularly important impact was on frontline workers in food processing facilities. Though these workers were classified as “essential,” and therefore permitted to stay working during quarantine restrictions, outbreaks in these facilities threatened the health and wellbeing of these workers and forced some facilities to shut down.⁷ Another impact on supply chains were demand shifts from institutional to in-home consumer venues.

Food suppliers and distributors had trouble adapting to this immediate shift while transportation bottlenecks further complicated the process of shifting markets, contributing to short-term shortages of products at the point of purchase (i.e. grocery stores) as companies rushed to shift production towards the now lopsided market. *Thus, an outcome of the early stages of the pandemic was an inability of some Ohio producers to get their products to consumers, resulting in wasted product and lost agricultural income even as food insecurity in the state rose dramatically.*

Simultaneously, classification of food system workers (e.g. farm workers, meat packing facility workers, grocery store retail workers etc.) as “essential” put these workers at significant risk in the face of the pandemic, often without sufficient protections to ensure their wellbeing. High COVID-19 infection rates among these populations threatened the stability of food supply lines as infection rates forced some facilities to close down. More importantly, pandemic risks for this population put a disproportionate and arguably unnecessary amount of risk on the shoulders of this working population, which is disproportionately made up of people from minority and low-income communities.⁸

The pandemic decreased the ability of Ohioans to purchase food. The pandemic also impacted the economic ability of Ohioans to purchase food.

⁷ Tina Saitone, K Aleks Schaefer, and Daniel P Scheitrum, “Covid-19 Morbidity and Mortality in Us Meatpacking Counties,” Food Policy (2021).

⁸ Centers for Disease Control and Prevention, “Risk of Exposure to Covid-19: Racial and Ethnic Health Disparities,” Centers for Disease Control and Prevention, <https://www.cdc.gov/coronavirus/2019-ncov/community/health-equity/racial-ethnic-disparities/increased-risk-exposure.html>.

SNAP, SNAP-Ed, P-EBT Policy Map | May 2021

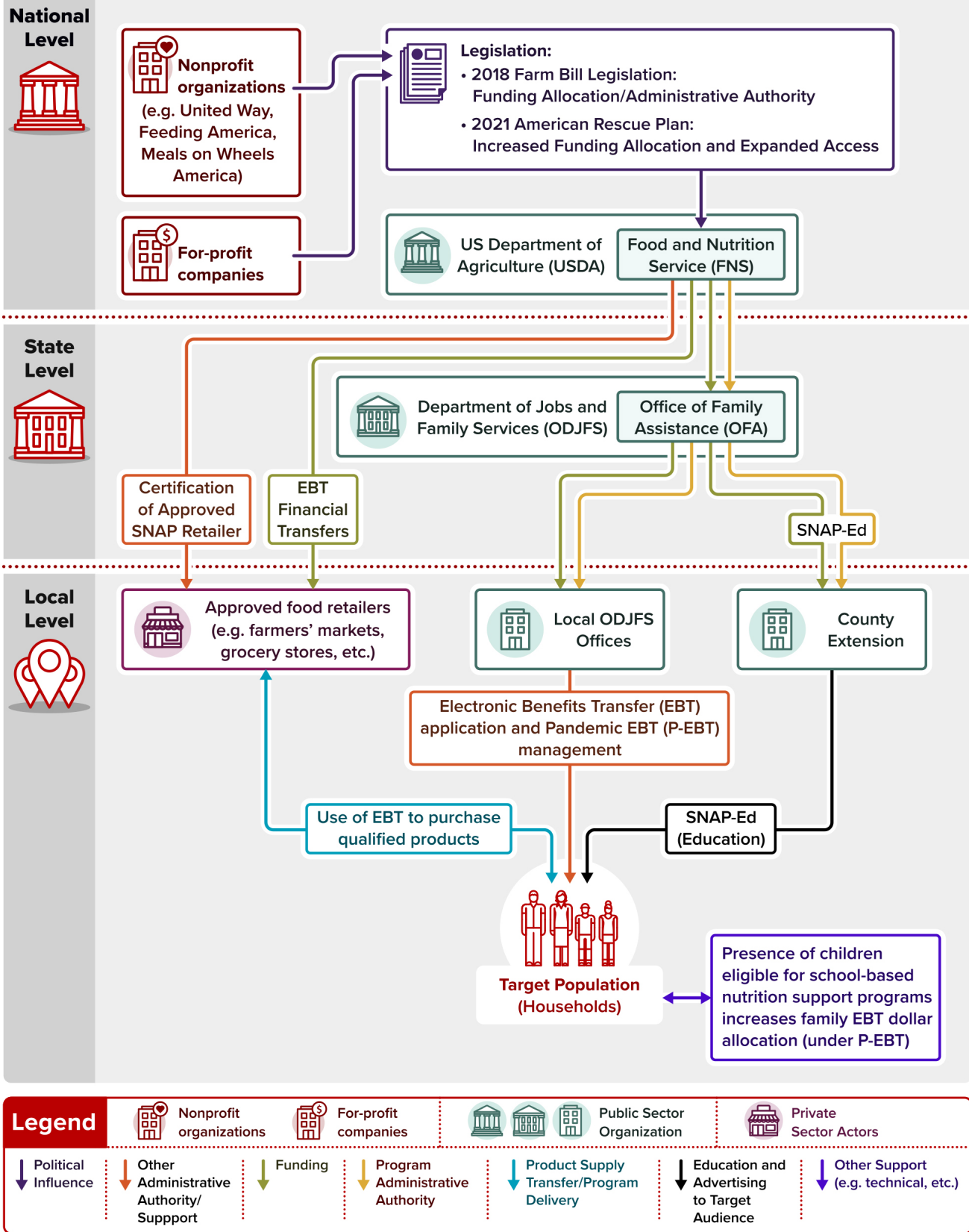


Figure 1. Example Policy Field Map for the Supplemental Nutrition Assistance Program (SNAP), SNAP-Ed, and Pandemic-EBT (P-EBT)

Most notably, layoffs – particularly in the food service sector – immediately impacted the income of many Ohioans. While expanded unemployment assistance later helped ameliorate some of these impacts, the immediate impacts of lost income helped contribute to food insecurity, forcing many Ohioans to resort to the emergency food system.

Beyond lost income, pandemic-related disruptions in the supply chain also contributed to food price volatility.⁹ While prices fell for certain commodities such as corn, prices for other food products, such as meat, milk, and cheese surged at various points. These price spikes for certain food staples decreased the overall purchasing power of consumers, including those receiving Supplemental Nutrition Assistance Program (SNAP) benefits. Adding to shortages caused by supply chain disruptions, price volatility and decreased purchasing power further contributed to food insecurity.

Short-term policy responses to the pandemic complicated the food system in the wake of the pandemic.¹⁰ In response to the pandemic, the U.S. federal government moved to authorize increases for SNAP benefits and increase access to food security programs. However, implementing many of these short-term program adjustments at the state level was complicated by administrative capacity and requirements. For example, processing SNAP applications under the newly expanded program reportedly created a dramatic increase in work for state-level administrators who had to process those applications. Other programs required administrative authority to change application processes. For instance, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) typically requires in-person assessments for applicants. Pandemic restrictions made these inconsistent with state and federal health advisories. However, receiving permission to waive in-person assessments at the state and local level required federal rule changes, further complicating the process.

Policies created as short-term responses to immediate food need contributed to unintended consequences that hindered the delivery of food to those in need. Most notably, the U.S. Department of Agriculture’s “Farmers to Families Food Box” program, launched in the spring of 2020, attempted to respond to pandemic-related food insecurity by authorizing the USDA to directly manage the purchasing and distribution of food to families in need. However, in an effort to incentivize contractors to deliver food directly to drop-off locations, the USDA reportedly paid contractors two to three times the actual retail value of the products contained in the boxes according to food security experts interviewed for this research. This contributed to dramatic price increases for staple food products such as milk, which had seen a price collapse due to supply chain disruptions but saw an increase in price by 25 percent in June of 2020 following the implementation of the food box program.¹¹ Echoing comments by food security administrators and experts nationally, stakeholders who participated in interviews for this research reported that these price increases made it more difficult for state and local food banks and pantries to purchase important staples and further weakened the purchasing power of food dollars.

COVID-19 resulted in multiple interacting disruptions highlighting the need for system-level emergency response planning in Ohio. These descriptions of the impact of the pandemic on the food system and the interactions between various state and federal level responses highlight the importance of considering the broader food system and the interactions between various organizations and agencies in emergency planning and response. Unlike more localized disasters (e.g., weather events, etc.) or disruptions in supply chains (e.g., E. coli outbreaks in spinach, etc.), COVID-19 disrupted supply chains at every level from production to consumption across all supply chains throughout the United States for extended periods of time.

⁹ Dave Mead et al., “The Impact of the Covid-19 Pandemic on Food Price Indexes and Data Collection,” in Monthly Labor Review (Washington, D.C.: U.S. Bureau of Labor Statistics, 2020).

¹⁰ Randy Alison Aussenberg, “Usda Nutrition Assistance Programs: Response to the Covid-19 Pandemic,” (Washington, DC: Congressional Research Service, 2021).

¹¹ Mead et al., “The Impact of the Covid-19 Pandemic on Food Price Indexes and Data Collection.”

This system-wide impact highlighted critical weaknesses in the food system and associated food policies and programs, including slow-to-adapt supply lines and under-resourced and complex administrative systems for emergency food programs. **The broad, systemic nature of COVID-19's impacts on food in Ohio necessitate a systemic approach to understanding the policy environment of food and agriculture in Ohio.** This motivates the program and policy data collection and exploration in this report.

On the ground, pre-COVID-19 federal and state EM agencies did not think about the food system in its entirety. Federal, state, and local EM agencies conceptualized disasters as highly localized events, with a primary focus on emergency feeding. Planning and exercise scenarios worked on the assumption that it would be relatively easy to bring in food from an adjoining county or state in the event of a disaster (Ohio EMA, Personal communication, 2020). A review of FEMA and state agency EM websites reveals the EM focus on preparing individuals to have a three-day supply of food and water and be aware of food safety risks if there is a power disruption (FEMA 2004). As a long-term emergency, COVID-19 upended this paradigm. **Furthermore, the ability of EM to respond to the food issues induced by COVID-19 was complicated by the constantly changing food policy matrix at the federal, state, and local level during the pandemic.**

COVID-19 revealed how Ohio state agencies with little connection to food systems became pivotal. For example, much of the highly perishable U.S. food supply is transported long distances across the country by truck. When highway restrooms were closed by Departments of Transportation, this introduced new stress for drivers and food safety risks. Pandemics can catalyze social disorganization at the community and household level, especially as access to food splits across socioeconomic lines, and the government's ability to deploy and coordinate social safety net programs has profound effects on the social and economic well-being of individuals, families, and

communities. Food is often a trigger for domestic violence,¹² and was likely a key contributor to rising domestic violence during the pandemic¹³ that created new strains for state agencies on the front lines of social services.

KEY TAKEAWAYS

COVID was a fundamentally different type of emergency from previous recent emergencies.

The most important lesson from this research, which emerged from conversations with key state-level staff interviewed, is that the pandemic represented a fundamentally different type of situation compared to other recent and expected emergencies, such as natural disasters.

Unlike conventional emergencies, for which Ohio EMA prepares through its emergency operations plans, the pandemic was not isolated to a confined region nor restricted to one or two product supply chains (e.g., as would be the case for a contamination emergency in a food supply chain, such as an E. coli outbreak). Rather, the pandemic's impact was universal, impacting nearly all supply chains and communities internationally within a relatively short time period and with no definite conclusion, at least when viewed at the outset of the pandemic. As a result, Ohio EMA, and nearly all organizations and agencies that we spoke with, were not structured to respond to this kind of crisis.

COVID-19 is not the only possible emergency with the potential to impact the entire food system. Other possible crisis situations with the potential to yield similarly systemic impacts include the following examples:¹⁴

- Other pandemics that similarly disrupt supply chains and the economy at large while overloading emergency relief infrastructure continue to have the potential to fundamentally disrupt the food system in the same ways as discussed for COVID-19.
- Coordinated cyber-attacks that disrupt or shut down essential infrastructure such as

¹² P. Allen and C.E. Sachs, "Women and Food Chains: The Gendered Politics of Food," *International Journal of the Sociology of Agriculture and Food* 15 (2007).

¹³ A. Taub, "A New Covid-19 Crisis: Domestic Abuse Rises Worldwide," *The New York Times* 2020.

¹⁴ Andrew G Huff et al., "How Resilient Is the United States' Food System to Pandemics?," *Journal of environmental studies and sciences* 5, no. 3 (2015).

power production and telecommunication could undermine functions that allow for the operation of food supply chains including production, distribution, and sales. Recent ransomware attacks on critical infrastructure such as Colonial Pipeline illustrate the potential crisis that such attacks can produce. Less than a month after the Colonial attack, one of the world's largest meat processors – JBS – was hit by similar ransomware, forcing the company to pay \$11 million. Future attacks, including ransomware and targeted cyber warfare tactics, could severely disrupt national and global food supply chains, particularly as many of these supply chains are concentrated among a small number of companies.

- Large-scale geologic events (e.g., the eruption of the super-volcano under Yellowstone National Park), planetary impacts, or nuclear explosions (intentional or accidental) with regional, national, and/or hemispheric-level fallout zones could disrupt agricultural production and supply lines over entire continents for extended periods of time. For instance, the 1815 eruption of Mount Tambora in Indonesia dramatically reduced global temperatures, contributing to 1816 being termed the “year without a summer” in Europe. This climatological disruption reduced crop harvests and contributed to widespread malnutrition in regions as far away as western Europe.¹⁵ Large meteoritic impacts or nuclear fallout can similarly disrupt the food and agriculture system. Though such events are rare in modern history, close calls¹⁶ and smaller-scale eruptions are a persistent reminder that such catastrophes remain a statistical probability.

This list is by no means an exhaustive inventory of other potential crises with similar system-wide implications. Moreover, while such crises are rare, this pandemic is illustrative that they are possible. In contrast to crisis situations with confined geographic impacts and short time horizons,

emergency planning in the face of long-term, system-wide crises needs to better plan for how to respond to crises that impact entire systems for extended time periods.

Need for robust and coordinated food supply chain and system-level responses in Ohio emergency food provision and planning.

A key takeaway from the review of Ohio EMA emergency planning documents was the absence of food and food supply chains in these planning documents outside of emergency feeding. In keeping with the previous point, Ohio EMA emergency response plans are built around preparation for relatively short time horizon, limited scope emergencies. In such situations, the most immediate concerns related to food are either the provision of food to those who need it in an immediate emergency (i.e., ESF #6 plans for emergency food distribution) or confinement of crises related to agriculture, such as the discovery and need to confine an outbreak in an animal feeding operation (e.g., an outbreak of avian flu in confined poultry operations).

Absent from Ohio EMA emergency response documents, however, are plans for how to handle disruptions in food supply chains over extended periods of time and multiple nodes. Yet, emergency food provisions fundamentally depend on many of the same supply chains that service the rest of the food system (i.e., the retail market). As previously noted, a novel impact of COVID-19 was that it disrupted, or threatened to disrupt, these food supply chains. *A key lesson is the need for emergency response plans to more fully plan for how much and what kind of food and what type of workers along the food supply chain are needed to sustain a given population, and to manage fundamental supply chain disruptions, in addition to how to redistribute food from these supply lines to those in need.* Such preparations will, by necessity, require a priori work to reorganize the food system to make it more adaptive and less concentrated in a small number of critical supply lines.

¹⁵ Jürg Luterbacher and Christian Pfister, “The Year without a Summer,” *Nature Geoscience* 8, no. 4 (2015).

¹⁶ Nuclear threats stem from both the production of nuclear energy as well as the detonation of nuclear weapons. For example, accidents at nuclear power plants in the last half-century (e.g. Chernobyl, Fukushima Daiichi, etc.) have come close to releasing radiation over large regions making those areas uninhabitable. Additionally, while no nuclear weapons have been dropped on a populated area intentionally since Hiroshima and Nagasaki, the U.S. alone has accidentally dropped more than a dozen nuclear weapons on itself and its allies. Though none fully detonated, several came very close (Jason Weaver, “One in a Million Given the Accident: Assuring Nuclear Weapon Safety,” (Sandia National Lab.(SNL-NM), Albuquerque, NM (United States), 2015).

Food policies and their intersection with state actors is complex and creates a “fog of response.” One striking takeaway from the policy field mapping exercise, particularly when all policies/programs were mapped in the same image, was the extreme complexity of the food policy landscape just within state-level agencies and organizations in Ohio. Many programs with similar goals, most notably the array of policies and programs that support food security and nutrition, are administered by different agencies and organizations with little or no connection to each other. For instance, the Supplemental Nutrition Assistance Program (SNAP), which is the federal-level food security and nutrition program for the general population meeting means-tested criteria, is administered by the Ohio Department of Job and Family Services. Meanwhile, the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC), another federal-level program focused on providing nutrition assistance to women who are pregnant or with young children, is administered by the Ohio Department of Health.

Additionally, many state-level programs, such as the Ohio Food Program and the Ohio Agricultural Clearance Program, are operated by the Ohio Association of Foodbanks and their member organizations. Administratively, this dispersion of emergency food programs across various agencies and organizations makes it more complicated for an Ohioan in need of food assistance to effectively avail herself of the available programs.

On top of this surface-level administrative complexity, many other organizations can have important impacts on food and the food supply chain, but without directly realizing it. For example, much of the highly perishable U.S. food supply is transported long distances across the country by truck. For instance, truck drivers historically depend on walk-in rest stop services for restrooms, showers and hot meals. However, when the pandemic began, these restaurants were forced to close to all but drive-through service, something that is not functionally possible for semi-trucks. Simultaneously, retailers also prohibited truck drivers from using their restrooms and facilities.

These changes effectively eliminated access to hot meals and other rest services for drivers, introducing new stress for drivers and potential food safety and security risks.

As the pandemic continued, the Ohio Department of Transportation (ODOT) created a temporary permitting system so that food trucks could sell at highway rest stops. This was an important action that facilitated the transportation of goods, including food, within and through Ohio because, without this, truckers had no place to purchase hot meals. However, while critical to the food system, when contacted for an interview, ODOT staff did not see themselves as being relevant to the food system.

Additionally, pandemic and related health restrictions also increased stress on public services in areas outside of food. For instance, the skyrocketing rates of domestic violence exacerbated by the pandemic¹⁷ created new strains for state agencies at the front lines of social services. An often-underappreciated fact is that food is a leading trigger for domestic violence,¹⁸ most often directed at women who do the majority of cooking and care work, and has cascading effects on families, communities, and community welfare. The ability of agencies such as Jobs and Family Services to deploy and coordinate social safety net programs has profound effects on the social and economic well-being of individuals, families, and communities.

At the same time, agencies such as the Ohio Department of Agriculture, which would appear to have immediate implications for Ohio’s food system, has limited impact, since its food-related roles are primarily regulatory in nature and most production support programs originate from and are administered by the U.S. Department of Agriculture.

The key takeaways from this state-level administrative complexity are that:

- Many food security and nutrition programs are administered across a handful of different agencies and organizations, some with limited connection to and communication with each other.

¹⁷ Taub, “A New Covid-19 Crisis: Domestic Abuse Rises Worldwide.”

¹⁸ Allen and Sachs, “Women and Food Chains: The Gendered Politics of Food.”



- Agencies and organizations can impact the food system and supply chains even when their primary administrative responsibilities are not directly related to food.
- Support for agricultural producers is largely facilitated by federal-level policies, limiting the role of state-level actors in a crisis.
- Even in the midst of day-to-day operations, emergency food administrators do not have the luxury nor opportunity to look beyond the most immediate needs and crises of their specific program, making it difficult for them to identify opportunities for synergies and collaborations across agencies in the moment.

NEXT STEPS

Potential opportunities in response to the pandemic and the observations offered in this report include actions that could be taken in the short, medium, and long-term.

Short-term

In the short-term, one opportunity would be to develop case studies and tabletop exercises to

better train emergency management personnel, as well as other state and local administrators and program managers, on how to respond to system-wide crises like COVID-19. Such trainings can develop awareness among administrators about how their work connects with others especially around food and develop both resources and relational connections that can help administrators be better prepared for how to respond to system-wide emergencies.

An additional recommended action is for Ohio EMA to continue to develop working relationships with food and agriculture nonprofit organizations in the state who participate in the Ohio Food Policy Network (OFPN).¹⁹ OFPN brings together local food policy council leaders, nonprofits, and other food and agriculture organizations to foster information sharing and collaboration towards the goal of developing a more sustainable, resilient, and equitable food system in Ohio. During the pandemic, many OFPN members were involved in frequent information sharing meetings to better coordinate resources and information in response to the pandemic. Continuing to strengthen connections with OFPN and its member organizations would position Ohio EMA to draw

¹⁹ For more information, see www.ohiofpn.org.

on these existing networks in future emergencies. This network development could be leveraged later to host formal stakeholder engagement.

Medium-term

In the medium-term, we recommend convening state-level administrators of food-related policies and programs in order to develop relationships between these stakeholders and greater awareness of how their work impacts and/or intersects with that of others. Furthermore, this convening could be an opportunity to conduct case study exercises among these state-level actors developed from the pandemic in order to build capacity to be able to better respond to similar crises in the future. The database of food-related policies and programs developed through this project will be an important resource in developing this stakeholder convening.

Long-term

In the long-term, there are several important areas of action and consideration that arise from the pandemic and the observations described in this report.

1. **Work to further diversify Ohio's agricultural environment.** A central lesson described in this report is that, in the face of system-wide crises such as the pandemic, emergency food planning needs to take into consideration the security and robustness of the supply chains that contribute to both retail and emergency food systems. Greater diversity in both the types of agriculture and the market opportunities (i.e., including more robust local and regional food systems) can be important factors in supporting more robust and responsive food supply chains.

One theme that emerged early in the pandemic was that, in the face of sudden changes in consumer demand (i.e., shifting from institutional to in-home consumption), small and mid-sized farming operations selling

through local and regional markets were better able to shift their production to meet the new demand.²⁰ This capacity for adaptation illustrates the resilience capacity of shorter food and agricultural supply chains in contrast with conventional national and global chains. Strengthening the capacity of short food supply chains, including ensuring the robustness and availability of these markets and the farms and ranches that serve them will be critical to ensuring the ability of food supply chains to respond to future system-wide emergencies.

An important step in this process will be mapping critical food and agriculture infrastructure in the state, such as meat slaughtering/processing facilities, flash freezing and cold storage, etc. Such a mapping process will need to evaluate locations, capacity, and ownership status (e.g., whether it is owned/operated by public, private, or nonprofit entities). This work, which was emphasized as an essential need by a food system leader in Ohio, would provide the necessary information for evaluating what infrastructure is available and where there are gaps in infrastructure availability that need to be filled in order to support a diversified agricultural system in the state.

2. **Reflect on the role of Ohio EMA in system-wide emergencies.** A second point of reflection and planning for Ohio EMA going forward will be to carefully consider the role of the agency as it connects to food and agriculture in these kinds of systems-wide emergencies. As described in this report, the nature of the emergency fundamentally differs from more geographically and temporally confined crises, such as natural disasters. Responding to food needs in such emergencies suggests a need for building new connections and relationships prior to the next crisis.

²⁰ Dawn Thilmany et al., "Local Food Supply Chain Dynamics and Resilience During Covid-19," *Applied Economic Perspectives and Policy* 43, no. 1 (2021).

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