

# FINAL REPORT: LOCAL AND REGIONAL FOOD SYSTEM COVID-19 RAPID RESPONSE

USDA-AMS Cooperative Agreement, May 2020 – September 2021

University of Kentucky, Colorado State University, Northeast Regional Center of Rural Development at Pennsylvania State University



# EXECUTIVE SUMMARY

The COVID-19 pandemic, and associated public health mandates, caused unprecedented shifts and disruptions for local and regional food systems (LRFS). Impacts on farm enterprises, value chain stakeholders, market channels, and food system infrastructure were both vast and varied, requiring rapid adaptation by all involved. The pandemic also brought new and heightened attention to the structure and resiliency of United States (U.S.) food systems. For instance, in light of immediate disruptions to food distribution channels, many LRFS stakeholders participated in emergency response calls that were focused on sharing real time information on relief funding, public safety, and market innovations. This highlights the need for cross sector relationships and peer-to-peer learning for food system resilience. Additionally, the importance of local food businesses was underscored by the pandemic with co-ops, farmers markets, and direct to consumer models gaining popularity -- exemplifying the notion that local food enterprises were a reliable and robust source of food procurement in a moment where foods were not being stocked on grocery store shelves.

In some sectors, local food enterprises such as Community Supported Agriculture (CSA) quickly filled localized gaps in food systems caused by global supply chain disruptions. Elsewhere, in other sectors such as restaurants and institutional food service, organizations retooled their business models and adopted new technology in response to labor shortages, physical closures, and other pandemic-induced challenges. For instance, restaurants changed what and how they sold to consumers by adopting new methods of payment and procurement options. Nevertheless, impacts to activity, sales, and relationships in these sectors were extensive, and often detrimental. But the COVID-19 pandemic also highlighted the strengths of local and regional food systems, and food acquisition and purchasing took on new dimensions as local food businesses such as co-ops and farmers markets saw a rise in popularity and filled gaps in supply chains.

These changes, which happened suddenly in March and April of 2020, prompted the U.S. Department of Agriculture, Agricultural Marketing Service (USDA AMS) to convene a project team to examine COVID-19 impacts to local food systems across the U.S. AMS partnered with three universities and 17 organizations representing different market channels (i.e. farmers markets, restaurants, independent grocery stores), specialty products (i.e. niche meat, regional grains), or socially disadvantaged communities (i.e. black farmers, tribal communities) to create a multidisciplinary project team. The project's purpose was to analyze the impacts of the pandemic in real time, collect and share emerging resources, provide COVID-related technical assistance, and facilitate collaborative stakeholder relationships within and between sectors.

The overarching questions guiding the project were defined by the USDA and project partners after contemplating mega-trends affecting U.S. food supply chains and initial discussions with project partners. Guiding questions included:

- How and in what ways are sectors of LRFS responding to COVID-19?
- What marketing and broader management adaptations have been successfully implemented in response to COVID-19?
- What obstacles and impediments have farm and food enterprises encountered in their response?
- How do policy, regulations, support programs, and technical assistance vary among and within sectors?
- How are supporting institutions (nonprofits, trade organizations, technical assistance partners) aligned with the LRFS sectors adapting to these obstacles?
- What are the direct economic impacts of COVID-19 on the sector, and what other hidden or broadly defined value-chain impacts are being observed in local and regional food systems?



# PROJECT OUTPUTS

The project began by exploring sector-specific efforts which were then used to identify collaborations and common challenges across LRFS. First, the project team conducted listening sessions with practitioners identified by the 17 organizations chosen to represent different market channels or stakeholder groups. These sessions identified adaptations, innovations, and critical issues emerging across the country and resulted in the development of [impact assessments](#). Impact assessments were developed in August 2020 and again in May 2021. Next, the project team facilitated regular meetings with the USDA, university partners and these organizations to inform USDA and sector leaders about innovations and strategies occurring across the LRFS. Through these convenings the need and value of a network of networks focused on LRFS emerged.

As a result of these discussions, the project team asked sector representatives to identify stakeholders that could provide examples of and resources for critical adaptations to COVID-19. The project team gathered resources into a free, publicly available [resource hub](#). They also conducted interviews and case studies with stakeholders who developed both unique and generalizable innovations. These interviews were the basis for [Innovation Briefs](#) which are also published in the project resource hub. In addition, the project team also conducted a social network analysis to measure changes in engagement levels, including networking, shared-learning, and collaboration and coordination on projects or funding opportunities, between sectors at the end of year one compared to the beginning of the project. This effort was to understand the changing relationship dynamics between sectors as they shared experiences and strategies for navigating the pandemic.

These sector-focused efforts were used to identify topics that might have more general interest across LRFS. Based on these common themes, a public-facing webinar series was created by the USDA and project team to present examples of innovations and strategies for adapting to COVID-related food systems issues. Webinar panelists spanning the LRFS engaged in facilitated discussions on topics such as the switch to online platforms or the need for access to emergency food systems and how those changes impacted their business or market channels. The project team also presented results in numerous conferences, meetings, and other public events. Finally, the project team conducted a national survey to measure changing consumer trends in relation to food purchasing, food access, and market channel usage.

As a result of these efforts, the project team:

- Conducted 22 listening sessions,
- Created a resource hub with around 200 resources,
- Published 27 impact assessments and 17 innovation briefs/case studies,
- Hosted 8 webinars,
- Completed a consumer survey with 5,000 respondents,
- Authored 10 Consumer Food Insights based on the collected data and created 3 infographics, and
- Organized and facilitated 10 monthly convenings with project team and partner organizations.

# FIRST YEAR INSIGHTS IDENTIFIED

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## LRFS ARE RESILIENT AND ADAPTIVE

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- Local and regional food systems demonstrated an ability to quickly adapt to changing conditions, for example adopting new delivery/payment methods for contactless delivery or establishing new systems for reservations and ordering to ensure social distancing, associated with the COVID-19 pandemic – especially in comparison to national/global supply chains.
- Businesses and stakeholders can adapt in times of crisis if they have sufficient access to resources, infrastructure, market data, consumers, relationships, examples of innovation, etc.
- Consumer food acquisition patterns shifted significantly. Many individuals tried local food businesses for the first time during the pandemic. Similarly, online shopping platforms became more popular for both consumers and food businesses. Access to these online options is not equal throughout the US and can also be cost and/or time prohibitive for some food businesses.

## LRFS ARE DIVERSE

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- The impact of COVID-19 on local food sectors varied tremendously. Businesses in certain sectors, such as institutions and restaurants, closed entirely or had to completely shift their operational model. Others, such as CSAs and produce auctions, gained consumer attention and sales. Farmers markets and agritourism experienced both outcomes, with some shuttering completely while others grew at unprecedented rates.
- COVID-19 intensified existing crises and inequalities such as food access, income disparities, infrastructure deficits, racial injustice, and so on. These inequalities impacted stakeholders' ability to access resources, including State and federal funding opportunities, emergency food programs, and online marketplaces, and adapt to the pandemic.

## LRFS ARE BUILT ON RELATIONSHIPS

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- Stakeholders' relationships are critical for dealing with disruptions, crises, and emerging challenges. These relationships exist within and between individuals, communities, sectors, regions, and institutions. Diverse, multi-scalar relationships allow for the transfer of knowledge, resources, and support.

Additionally, the project team has suggestions for further research, programming, and food system development, many of which will be explored in the second phase of this research project.<sup>1</sup> The following list is an overview of the team's suggestions.

- Collaborate across sectors to meet emerging food needs.
- Develop relationships that facilitate real-time feedback between on-the-ground food system stakeholders, regional organizations, universities, and governmental decision-makers.
- Continue monitoring the evolution of food system structures and consumer food acquisition strategies.
- Center equity in food system leadership and development.
- Identify key attributes of resilience in different places, sectors, and food systems.
- Develop strategies to mitigate the persistence of food access issues and vulnerability in different types of food systems.

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<sup>1</sup> The project will be continued as a new cooperative research agreement titled "Local and Regional Food Systems Recovery and Resilience (2.0)." This new project is described in more detail in this video <https://vimeo.com/656760690> and in the attached supplemental materials.

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# OVERVIEW

The COVID-19 pandemic, and associated public health mandates, caused unprecedented shifts and disruptions for local and regional food systems (LRFS). Impacts on farm enterprises, value chain stakeholders, market channels, and food system infrastructure were both vast and varied, requiring rapid adaptation by all involved. The pandemic also brought new and heightened attention to the structure and resiliency of United States (U.S.) food systems. For instance, in light of immediate disruptions to food distribution channels, many LRFS stakeholders participated in emergency response calls that were focused on sharing real time information on relief funding, public safety, and market innovations. This highlights the need for cross sector relationships and peer-to-peer learning for food system resilience. Additionally, the importance of local food businesses was underscored by the pandemic with co-ops, farmers markets, and direct to consumer models gaining popularity -- exemplifying the notion that local food enterprises were a reliable and robust source of food procurement in a moment where foods were not being stocked on grocery store shelves.

In some sectors, local food enterprises such as Community Supported Agriculture (CSA) quickly filled localized gaps in food systems caused by global supply chain disruptions. Elsewhere, in other sectors such as restaurants and institutional food service, organizations retooled their business models and adopted new technology in response to labor shortages, physical closures, and other pandemic-induced challenges. For instance, restaurants changed what and how they sold to consumers by adopting new methods of payment and procurement options. Nevertheless, impacts to activity, sales, and relationships in these sectors were extensive, and often detrimental. But the COVID-19 pandemic also highlighted the strengths of local and regional food systems, and food acquisition and purchasing took on new dimensions as local food businesses such as co-ops and farmers markets saw a rise in popularity and filled gaps in supply chains.

These changes, which happened suddenly in March and April of 2020, prompted the U.S. Department of Agriculture, Agricultural Marketing Service (USDA AMS) to convene a project team to examine COVID-19 impacts to local food systems across the U.S. AMS partnered with three universities and 17 organizations representing different market channels (i.e. farmers markets, restaurants, independent grocery stores), specialty products (i.e. niche meat, regional grains), or socially disadvantaged communities (i.e. black farmers, tribal communities) to create a multidisciplinary project team. These regional and national organizations focus on providing technical assistance and resources to stakeholders involved in providing local food to local communities. While these organizations had diverse foci in terms of topics and market orientation, their common emphasis on local and regional foods created numerous opportunities for cross-sector collaboration and learnings. The team referred to these organizations as Community of Practice Coordinating Organizations (COPCOs). Though USDA AMS had previously worked with a few of the organizations, for some of the organizations this project represented a new partnership between AMS and specific LRFS sectors, including fisheries, restaurants, agritourism and regional grain producers.

## COMMUNITY OF PRACTICE COORDINATING ORGANIZATIONS (COPCOS)

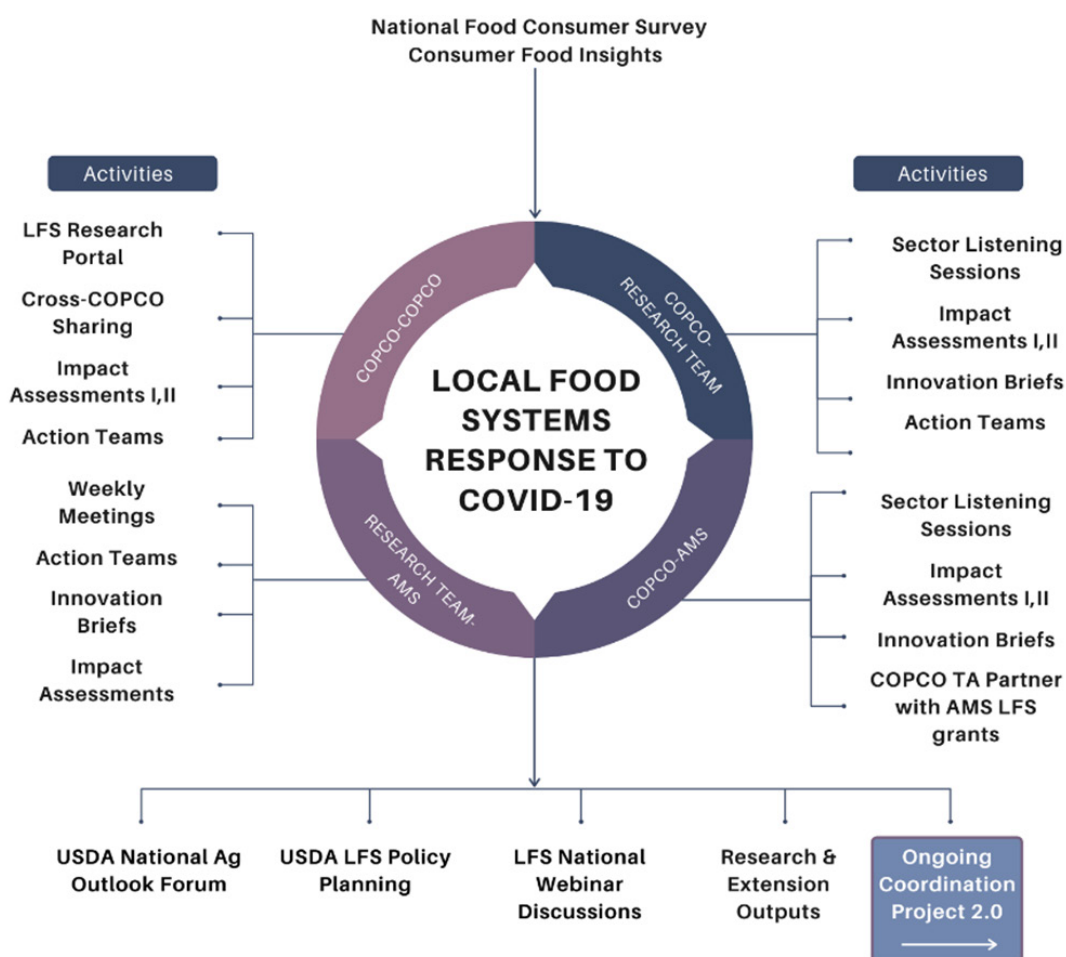
- ▣ University of Arkansas Indigenous Food and Agriculture Initiative - Tribal Communities
- ▣ Center for Crop Diversification – Produce Auctions
- ▣ Center for Environmental Farming Systems – Racial Equity in the Food System
- ▣ CSA Innovation Network (CSA-IN) – Community Supported Agriculture (CSAs)
- ▣ Farmers Market Coalition (FMC) – Farmers Markets
- ▣ Farm to Institution New England (FINE) – Farm to Institution
- ▣ The James Beard Foundation (JBF) - Restaurants
- ▣ Local Catch Network (LCN) – Fisheries
- ▣ National Association of State Departments of Agriculture Foundation (NASDAF) – State Departments of Agriculture
- ▣ National Co-op Grocers (NCG) – Co-op Grocers
- ▣ National Farm to School Network (NFSN) – Farm to School



- ▣ National Grocers Association (NGA) – Independent Grocery Stores
- ▣ Network for Incubator and Commissary Kitchens (NICK) – Shared-Use Kitchens
- ▣ Niche Meat Processor Assistance Network (NMPAN) – Niche Meat
- ▣ North American Farmers Direct Marketing Association (NAFDMA) - Agritourism
- ▣ Wallace Center at Winrock International – Food Hubs
- ▣ Washington State University Bread Lab – Regional Grains

## PROJECT COORDINATION AND ACTIVITIES

This project was designed to access the unique capacities, competencies, and connections of all project partners. The figure below shows the specific activities in which different teams were involved. The center of this project was monthly meetings of all project participants (COPCOs, university researchers, USDA staff, and invited guests).



These monthly convenings allowed for cross-sector collaboration, a deeper understanding of the complex dynamics at play within LRFS and promoting multidirectional communication and mutual accountability among all project partners. The gatherings included large and small group discussions, regular reporting on project outputs from research partners, presentations on sector activities from COPCOs, and report-backs from USDA team members and invited guests on evolving programming and policy initiatives.

The following sections illustrate specific project activities.



## **LRFS SECTOR LISTENING SESSIONS**

At the start of the project, the project team facilitated 22 listening sessions that guided groups of sector-specific LRFS stakeholders in conversations about how COVID-19 had impacted their sector. Participants discussed impacts, adaptations, needs, and outlook for the near- and long-term future. These listening sessions guided the research team in developing preliminary snapshots of urgent and emergent COVID-related issues for each local food sub-sector and the LRFS sector as a whole. Listening sessions also aided the research team and COPCO's leaders in identifying innovations and adaptations that were later developed into Innovation Briefs housed on the project website. In addition, information learned in the listening sessions identified overarching topic areas that were the focus of a webinar series and were also foundational to framing approaches for developing sector-specific impact assessments.

## **SECTOR SPECIFIC IMPACT ASSESSMENTS**

In the summer of 2020, COPCOs leaders were asked to develop an impact assessment that characterized the sector's response to the early months of COVID-19. To do this, they drew from sector-specific listening sessions, surveys of their stakeholders, and other data. They then created impact assessments that described the following topics:

- ▣ Overall Positive and Negative Impacts of COVID-19
- ▣ Obstacles to Sector Response
- ▣ Successful Marketing Adaptations in Response to COVID-19
- ▣ Economic Impact on Sectors
- ▣ Impact on Sector Members
- ▣ Data and Technical Assistance Needs

These snapshots were useful in baselining initial perceptions of the pandemic. COPCO leaders were then asked to repeat this assessment in the summer of 2021. This second impact assessment allowed for comparisons to the baseline assessment. It also assessed the ongoing adaptations of sectors to new COVID-related challenges. Impact assessments can be found at: [https://lfscovid.localfoodeconomics.com/impact\\_assessments/](https://lfscovid.localfoodeconomics.com/impact_assessments/).

## **INNOVATION BRIEFS AND CASE STUDIES**

Innovation briefs were designed to capture stories and innovations that could be shared across sectors and with the general public. Some of these innovations are generalizable and can be adapted to other sectors and stakeholders. Others are more place- or market-specific but have important lessons for how local food systems and communities adapt to crises. Each involves a story of the innovation and implications for food system practitioners. These briefs emerged from listening sessions, impact assessments, interviews, and cross-sector discussions with COPCOs. Briefs can be found at: <https://lfscovid.localfoodeconomics.com/briefs/>.

## **INNOVATION BRIEF AND CASE STUDY TOPICS**

- ▣ [FRESHFARM's Market Tracker: Methods for Farmers Markets to Collect Sales Data](#)
- ▣ [Virtual CSA Fairs](#)
- ▣ [Oyster Trails: So... you think you want to establish an Oyster Trail or a U-Pick?](#)
- ▣ [Neighbor Loaves](#)
- ▣ [From Food Hubs to CSAs](#)
- ▣ [James Beard Foundation's Response to COVID-19](#)
- ▣ [Lee Initiative Restaurant Reboot Relief Program](#)
- ▣ [Healthcare CSAs and Local Retail Outlets](#)

- ▣ [Estimating Farmers Market Visitors by Counting Mobile Phone Pings](#)
- ▣ [Virtual Harvest Celebrations](#)
- ▣ [State and Federal Policies that Support Food Security in the Age of the COVID-19 Pandemic](#)
- ▣ [Alternative Farmers Market Models](#)
- ▣ [PreK & K-12 Schools as Access Points for Local Food](#)
- ▣ [Reclaiming Innovation in Indigenous Food Systems](#)
- ▣ [Ticketed Entry for Agritourism](#)
- ▣ [So, You Want to Start a Meat Plant?](#)
- ▣ [Using Budgets to Help Farmers Markets Adapt to COVID-19](#)

## **PROJECT WEBINARS**

The project team held eight public webinars between October 2020-May 2021. Topics were chosen based on analysis of impact assessments, listening sessions, and monthly meetings. Webinar content prioritized topics and discussions centered on diversity, equity, and inclusion.

Webinar presentations included:

- ▣ Marketing Innovations when Communities Eat at Home
- ▣ Retailing and Engaging New Local Customers: Tensions and Opportunities
- ▣ Emergency Food, Charity, and the Local Food System
- ▣ Innovations in State Policy and Implications for Local and Regional Food Sectors
- ▣ Formal and Informal Cooperative Development to Support Local and Regional Food Systems
- ▣ Online Platforms: Pivots and Planning for the Future
- ▣ Integrating National Consumer Survey Results into Future Planning
- ▣ Next Steps to Support the Local Food System in Times of Uncertain Consumer Behavior

The webinars brought together panelists from different sectors and backgrounds into a facilitated discussion focused on a specific topic that had impacts across the LRFS. For example, the first webinar focused on how different LRFS stakeholders responded when individuals changed their behaviors and ate at home and featured panelists representing the niche meat sector, farm to school operations and food hubs. Panelists shared their sector specific experiences and concerns, and also discussed their shared experiences including similar concerns about making long-term infrastructure investments to address changing consumer behavior while also being uncertain about the permanence of those changes.

All webinars were [recorded and summaries](#) were written to provide multiple ways for LRFS stakeholders to access this information.

## **CONSUMER FOOD SURVEY AND INSIGHTS**

In the fall of 2020, with a focus on the implications for LRFS, the research team conducted a national survey of 5,000 households to better understand changes in consumer behavior related to COVID-19 and social distancing measures. The survey provides important insights into how the pandemic changed the way that U.S. households made food choices, and whether some of the changes may be sustained post-pandemic. Using this data, the Consumer Food Insights series provided timely, easy-to-interpret information about consumer behavior during the early months of COVID-19 to help guide LRFS businesses (available at: <https://lfscovid.localfoodeconomics.com/consumer-food-insights/>).

## CONSUMER INSIGHTS SURVEY INSTRUMENT DEVELOPMENT

The consumer survey was iteratively framed, developed, and analyzed in collaboration with a diverse group of LRFS stakeholders. Although the team also drew from existing instruments, such as the Bureau of Labor Statistics' Consumer Expenditure Survey and the National Household Food Acquisition and Purchase Survey (FoodAPS), many survey questions were adapted to reflect COVID-related consumer trends that were of particular interest to the COPCOs. For instance, questions were developed that evaluated consumer use of different local market channels and online shopping methods. Impact assessments, listening sessions, and one-on-one feedback sessions provided particularly rich contexts for development of the survey.

## SURVEY DETAILS

The consumer survey captured timely and relevant food buying patterns in thirteen market channels. Deviating from the traditional strategy of asking consumers about specific food products, respondents were asked to focus on the marketing channels where they shopped, how shopping patterns were changing, and what the underlying motives, drivers, and factors were that influenced those buying patterns.

The survey was conducted online from mid-October to mid-November of 2020 using Qualtrics XM software and a paid panel, with quotas set to assure a demographically balanced sample. The survey was structured to capture choices at three points in time: September 2019 (pre-COVID), April 2020 (initial COVID response), and September 2020 (directly before the survey, mid-pandemic).

The survey asked a variety of questions about demographics, how COVID-19 is affecting the household, and household food behavior, including 1) purchases of food through a variety of market channels and sources, 2) use of online platforms, 3) motivations to choose various food channels, and 4) confidence and values aligned with various food issues and institutions. Once data was collected, the project team shared insights with stakeholders via 'data bites' at monthly cross-sector meetings to gather feedback from them to guide the interpretation of trends seen in the data.

## CONSUMER FOOD INSIGHTS AND INFOGRAPHICS

The project team identified a need for the development of short, detailed breakdowns of highlights from the consumer survey to help make the data accessible. They developed ten Consumer Food Insights (CFI) briefs, and three others were being drafted as of February 2022. CFIs can be found at <https://lfscovid.localfoodeconomics.com/consumer-food-insights/>. The research team is currently collecting similar consumer data in a new survey that considers consumer behavior 18 months following COVID-19's emergence. The CFIs published as of December 2021 included:

- [Survey Overview](#)
- [Use of Food Market Channels](#)
- [Food Security](#)
- [Online Food Shopping Trends](#)
- [Local Food Perception Differences Between Residents in Different Sized Communities](#)
- [Consumer Changes by Weekly Food Expenditures by Market Channel in Non-Metropolitan Communities](#)
- [COVID-19 Food Channel Expenditure Shares: Trends Across Time and Consumer Perceptions](#)
- [How Did Time Use Shift During the COVID-19 Pandemic?](#)
- [Exploring Awareness and Promotional Linkages to New Market Channels During COVID-19](#)
- [Changes in Expenditures at Local Food Market Channels in Different-sized Communities](#)

Additionally, three infographics were developed by project team members and USDA personnel that were published in fall 2021 in CHOICES – an online publication of the Agriculture and Applied Economics Association. (<https://www.choicesmagazine.org/choices-magazine/data-visualizations/us-consumer-food-insights-during-the-covid-19-pandemic>)



## SOCIAL NETWORK ANALYSIS

A social network analysis (SNA) was completed to examine changes in the quality of network connections between the COPCOs. A baseline of interaction was examined through a survey in August 2020 with a follow-up survey conducted in May 2021. The intent was to measure how engagement between sectors changed as a result of participating in this multi-sector project effort.

Shared activities explored included applications for funding, strategic planning, collaboration on other projects, awareness of others' challenges and adaptations, coordination for technical assistance, and communication on a variety of policy initiatives. Given the high level of activity in funding programs, the network was engaged to get the message out on elevated funding levels for existing marketing programs and the diverse ways that our state department of agriculture partners (NASDA) were framing and distributing funds in their state. In future-focused discussions, the network had rich conversations envisioning how local and regional markets could better integrate with the food security and school meal programs that were majorly impacted and who initiated numerous innovations during the pandemic, and also where policy and programs could facilitate such integration. While a final version of this SNA report is being completed, a few preliminary results stand out. First, connections between sectors at the start of the project were often related to similar types of work in the LRFS. For instance, COPCOs related to farm to school, farm to institution, and food hubs had strong connections and mutual familiarity. Similarly, CSA, farmers markets, and state departments of agriculture had existing relationships. Niche market sectors, restaurants, and retail oriented COPCOs had fewer connections to other COPCOs overall.

Regular cross-sector interactions during the project – which included sharing of innovations and adaptations – created many new and positive levels of interaction between less connected COPCOs. In the social network survey, COPCOs noted many benefits of these interactions, including that these interactions:

- Allowed for real-time cross-sector sharing and learning which created a new network of networks that may facilitate new and potential collaborations between unfamiliar sectors;
- Generated a sense of cohesion for local food system work more generally;
- Developed a shared understanding of food system dynamics, especially in relation to both points of systemic weakness and resilience; and,
- Outlined linkages and complexities between local, regional, and national networks and food systems.

While the team is still working on better defining changes in network connections as a result of this project, it is evident that awareness and collaboration between sectors has increased significantly.

## ORGANIZING AND SHARING RESOURCE MATERIALS

The project team developed a [website](#) to house resources developed and shared by the COPCOs and the project team. This site housed searchable resources by market segment type, sector-specific impact assessments and updates, innovation briefs, case studies, CFIs, and information on the webinar series (including recordings and summaries).

Site analytics reports from May 2020 to October 1, 2021 identified the following activity:

Webpage	Pageviews
Project Homepage	19,740
Resource Hub	5,913
Webinar Series <sup>2</sup>	4,993
Innovation Briefs	3,558
CFI <sup>3</sup>	2,679
Impact Assessment	2,493
Case Studies	306

2 Though the exact number of total participants is unknown, webinars averaged >100 live attendees. Further, >4,700 page views were recorded on the [localfoodeconomics.com](#) webinar series page, and >4,700 page views on the webinar registration page. Due to the embedded nature of the recorded webinars on YouTube, it is difficult to get an exact number of views. Recordings of the webinars can be found at <https://lfscovid.localfoodeconomics.com/webinar-series/>.

3 The ten published CFIs have registered a total of 2,388 page views since they began being posted (December 2020). Of those page views, over 1,500 were downloaded, with some briefs downloaded up to 500 times.

The site has remained extremely active with new resources added since this time and will serve as the platform for the second phase of the LRFS Response to COVID-19 project, which is titled “Local and Regional Food Systems Recovery and Resilience (2.0).”

## **PAPERS AND PRESENTATIONS**

The project produced numerous papers and presentations in an effort to share findings with academic, trade, and policy partners working with local and regional food systems. Three peer-reviewed papers, two graduate student manuscripts, and 28 professional and trade presentations were delivered by the project team to various audiences. Many of these engagements were facilitated by COPCO partners.

## **ACADEMIC JOURNAL ARTICLES**

Thilmany, Dawn, Lillian Brislen, Hailey Edmonson, Mackenzie Gill, Becca B.R. Jablonski, Sarah Rocker, Jairus Rossi, Tim Woods, and Samantha Schaffstall (2021), *Novel methods for an interesting time: Exploring U.S. local food systems’ impacts and initiatives to respond to Covid*, *Australian Journal of Agricultural and Resource Economics*, <https://doi.org/10.1111/1467-8489.12456>

O’Hara, Jeff, Timothy Woods, Nony Dutton and Nick Stavely (2021), “COVID-19’s Impact on Farmers Market Sales in the Washington, D.C., Area”, *Journal of Agriculture and Applied Economics* 53(1):94-109

Dawn Thilmany, Elizabeth Canales, Sarah A. Low, and Kathryn Boys (2021), Local Food Supply Chain Dynamics and Resilience during COVID-19, *Applied Economic Perspectives and Policy* (2021) 43(1):86–104. doi:10.1002/aapp.1312

## **GRADUATE STUDENT PUBLICATIONS**

*Exploring Local Food Purchasing Patterns During COVID-19: Insights from a Nationwide Consumer Survey*, Hailey Edmonson, MS Thesis, Dept of Ag and Resource Economics, Colorado State University (2021)

*Exploring Changes in Preparing Food at Home Expenditures during the Covid Era – A Structural Equation Model*, Azita Verzari, Selected essay from PhD Dissertation, Dept of Ag Economics, University of Kentucky (2022)

## **PRESENTATIONS**

*Exploring How Different Ways of Shopping Affect the Expenditure Spent in Health/Natural Supermarkets in Different Communities During COVID*, Azita Varziri and Dr. Tim Woods, Southern Ag Economics Association (2022)

*Supply Chain Resilience during Covid-19 – Building Better Beyond*, Samantha Schaffstall, Elizabeth Rowland, Scott Thellman, Tim Woods, National Ag Summit (2021)

*Consumer Market Responses in the Covid Era* – Dr. Dawn Thilmany, Hailey Edmonson, Dr. Jairus Rossi, Dr. Tim Woods, Dr. Josh Stoll, National Ag Summit (2021)

*Food Shopping in the Time of Covid: Implications of Restrictions on Time Use, Market Choices, and Food Security*, MacKenzie Gill, Dr. Becca Jablonski, Hailey Edmonson, Dr. Dawn Thilmany, Food Distribution Research Society/National Ag Summit (2021)

*Farmers Markets – Essential Business Survival in Disrupting Times*, Dr. Jairus Rossi, Dr. Mahla Zare, Dr. Tim Woods, Food Distribution Research Society/National Ag Summit (2021)

*Consumer expenditure changes across U.S. food market channels during Covid disruptions – implications for produce markets*, Hailey Edmonson, Becca Jablonski, Dawn Thilmany, Specialty Crop/Extension Section symposium, Applied Agricultural Economics Association (2021)

*Geography of Covid-Era Regional Consumer Food Values and Local Food Supply Chains*, Dr. Jairus Rossi, Specialty Crop/Extension Section symposium, Applied Agricultural Economics Association (2021)

*Bringing Covid Consumer Response Data to Extension Audiences – Land Grants, Partner Agencies, and Farms*, Dr. Tim Woods, Specialty Crop/Extension Section symposium, Applied Agricultural Economics Association (2021)

*Building Better Beyond: Covid-19 and Agritourism*, Dr. Tim Woods, NAFDMA Regional Meeting, Murfreesboro, TN (2021)

*Covid Adaptations for Local Products: Resilience, Sustainability, and Place in the Market*, Dr. Tim Woods, Great Plain Growers Conference (2021)

*Local and Regional Food Systems: Resilience, Sustainability, and Place in the Market*, Dr. Tim Woods, Community, Local and Regional Food Systems <https://www.youtube.com/watch?v=HwuWnbb9Ta4> (2021)

*Consumer Market Responses and Values in the COVID-ERA: Implications for Produce Supply Chains*, Dr. Tim Woods, Dr. Becca Jablonski, Dr. Dawn Thilmany, Dr. Jairus Rossi, Dr. Jeff O'Hara, Applied Agricultural Economics Association (2021)

*Changes in Consumer Behavior during the COVID-19 Pandemic: Implications for Local Food Systems*, Hailey Edmondson, Dr. Becca Jablonski, Dr. Tim Woods, Dr. Jairus Rossi, Mackenzie Gill, Applied Agricultural Economics Association (2021)

*Demand for different product attributes during the COVID-19 pandemic: Lessons from a national consumer survey*, Mackenzie Gill, Applied Agricultural Economics Association (2021)

*Consumer Food Insights: COVID-19*, Dr. Becca Jablonski, Dr. Dawn Thilmany, Hailey Edmondson, Mackenzie Gill, Southern Rocky Mountain Ag Conference (2021)

*How to Build the Resiliency of The Food Supply Chain- Lessons From COVID-19*, Dr. Dawn Thilmany, Sustainability of Animal, Agriculture, and Food Security: Lessons from COVID-19 Virtual Conference (2021)

*The Changing Food Landscape During COVID: A Look at Local and Regional Food Market Dynamics*, Dr. Dawn Thilmany, O'Neill Public Policy Analysis and Public Finance Speaker Series (2021)

*Insights from Consumer and Supply Chain COVID Responses in Regional Food Systems*, Dr. Dawn Thilmany, 2021 AARES Meeting (2021)

*Local Foods in the COVID Era: Exploring Consumer and Supply Chain Responses*, Dr. Dawn Thilmany, Mississippi State University Seminar Series (2021)

*Consumers During COVID: Exploring Food Market Choices and Online Purchasing*, Dr. Dawn Thilmany, AAEE Health Section Track Session Coping with COVID in Agriculture (2021)

*Consumer Trends during COVID and Beyond*, Dr. Becca Jablonski, Dr. Dawn Thilmany, Hailey Edmondson, Mackenzie Gill

*Food Consumer Response and Supply Chain Dynamics during COVID-19*, Dr. Dawn Thilmany, Keynote to the Asian Pacific Economic Cooperation Member Economies (2021)

*The Changing Dynamics of Online Sales for Local and Regional Farms and Food Businesses*, Dr. Dawn Thilmany, Missouri Extension Local Food Systems Team SARE Virtual Conference (2021)

Local Food Systems Response to Covid – Consideration for Extension, Dr. Tim Woods, eXtension Webinar Series (2021)

*Local and Regional Food Systems Resilience, Sustainability, and Place in the Market*, Dr. Tim Woods, Catalyzing Adaptive and Resilient Food Systems, UC Davis, (2020)

*Creative COVID-Era Sourcing Ideas for Grocers*, Dr. Tim Woods, James Neumann, Roger Snell, Joshua Crone, National Grocers Webinar series (2020)

*Market Trends*, Dr. Becca Jablonski, Colorado's Building Farmer Program (2020)

*Using market channels to estimate COVID impacts*, Dr. Becca Jablonski & Dr. Dawn Thilmany (2020)

*Marketing Innovations when Restaurants Close: Local and Regional Food Systems Response to COVID-19*, Tricia Kovacs, Dr. Joshua Stoll, Ashley Kosiak, Rebecca Thistlethwaite, USDA Ag Outlook Forum (2021)



# CONCLUSION

This project brought together universities, organizations, LRFS stakeholders and the USDA to support the ongoing work of LRFS practitioners, capture the impacts of COVID-19 disruptions, foster cross sector collaboration, and provide technical assistance and information about available resources to LRFS practitioners. In pursuit of these goals, the project team executed numerous and varied activities which included:

- Conducting 22 listening sessions,
- Creating a resource hub with around 200 resources,
- Publishing 27 impact assessments and 17 innovation briefs/case studies,
- Hosting 8 webinars,
- Completing a consumer survey with 5,000 respondents,
- Authoring 10 Consumer Food Insights based on the collected data and creating 3 infographics, and
- Organizing and facilitating 10 monthly convenings with the project team and partner organizations.

The project gleaned many valuable insights and identified areas where additional effort is needed as we collectively work towards recovery and building a resilient food system.<sup>4</sup> Project activities provided evidence of a resilient and adaptive LRFS that was able to quickly adjust to changing conditions, as well as supplier and customer needs. However, the ability for LRFS to rapidly adapt and innovate depended on having sufficient access to resources, infrastructure, market data, and relationships with actors across the supply chain. The impacts of COVID-19 on local food sectors and practitioners also varied tremendously, based on access to these resources and the fact that COVID-19 disruptions were occurring in addition to existing crises and inequalities such as food access, income disparities, infrastructure deficits, and racial injustice. As we continue our work towards building a resilient food system, addressing these challenges will be vital and what we have seen throughout this project is that strong relationships between individuals, communities, sectors, regions and institutions along with the infrastructure to facilitate cross-sector learnings and collaborations will be key.

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<sup>4</sup> The project will be continued as a new cooperative research agreement titled “Local and Regional Food Systems Recovery and Resilience (2.0).” This new project is described in more detail in this video <https://vimeo.com/656760690> and in the attached supplemental materials.