



## **Using Maps for Food System Access and Planning**

**April 29, 2020**

**Link to video recording:** <https://www.youtube.com/watch?v=fwxDtEFkdZo>

### **Call description:**

With COVID-19 disruptions in supply chains, mapping and analyzing food availability and flows can be powerful tools in guiding emergency food response and future food system planning. On this call, we'll first look at the way communities have used mapping to collect and share information on food access. The second part of the discussion will give a systems overview of how segments of food supply chains interact at different scales, for different products, and for different end-users. This includes the patterns food distribution followed before COVID-19 and what the patterns might be after the pandemic. The call will help us best use food access maps while planning for food system improvements.

We will be joined by:

- Sara Oberle, RDN, Extension Teacher, UNH Cooperative Extension
- Brooke Kelleher, Program Assistant, UNH Cooperative Extension
- Michelle Miller, Associate Director of Programs, UW-Madison Center for Integrated Agricultural Systems

### **Call recording:**

### **Resources:**

Feel free to share your maps in this spreadsheet:

<https://docs.google.com/spreadsheets/d/1gmxs7USpzzrHXlqUBfBm1oGmtCJB2Tb2p/edit#gid=562625394>

NH map:

<https://unhcoopext.maps.arcgis.com/apps/MapSeries/index.html?appid=5caa235e0e024beb8beb50a0297d15>

Online food distribution tools:

<https://docs.google.com/spreadsheets/d/11mAAAna0pzyY2xnBt0nok8tG-5ZonR3Q4R6DvTYLiZA/edit#gid=0>

### **Call Notes**

#### **Food Access Mapping:**

Presenters: Sara and Brooke have worked with their team at UNH to develop a food map, will share how it's been developed and how to use it

- First time using maps, completely in response to COVID-19

How it came to be:

- Food systems organizations came together to share resources, realized that no one knew what the other was doing, new pop-ups were coming up - how can we display all of this in real time?
- The food system landscape has changed in the time of COVID, the map was a way to capture and illustrate this

How the map was developed:



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- Populated each point differently
- Instead of taking existing data that was out there, we created a form/survey for orgs to fill out that captured location, needs/offers
- Became a community needs map - relied on partners to share what their communities need
- Ended up creating a system of food access by connecting food distributors, producers, consumers.
- Used their geospatial professor to create this
- Continually evolving map -- ex. Will be adding a community food benefits tab, incentive programs
- Partnering with different government departments (ex. Dept of Ed) to input data points

How this map is being used:

- It's not just individuals who need food that are using it
- Originally thought consumers would be sole users but healthcare providers, caseworkers, property managers are also using it to support the communities they work for
- Creating connections with other sectors that can be brought into other work

Learnings

- Not everything needs to be turned into a map
- It's more than just a map - it's interactive and was developed with the user in mind -- Continually asking ourselves what the user is looking for and responding to that

Upkeep

- We have a separate form for folks to submit updates that we send reminders asking them to continually update the information. Our team continually monitors social media for updates as well
- Eager to keep this going on

**Map link:**

<https://unhcoopext.maps.arcgis.com/apps/MapSeries/index.html?appid=5caa235e0e024beb8beb50a0297d15>

## **Maps and food distribution patterns**

- Presenter: Michelle Miller, University of Wisconsin
- Values-based food supply chains - pre-existing patterns and how COVID has changed these patterns
- 3 primary food flows: food service, retail, emergency food
  - What we're seeing is that emergency food is ongoing
- For the past decade we've been eating out more than grocery shopping, now we have quickly and significantly swung back
- Two kinds of buyers: vertically integrated companies that own a big portion of the supply chain vs multiple businesses working together to get products from farm to outlet
  - Concentration of Power in the Food System, Philip Howard - book recommendation

Maps



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- List of maps presented:  
<https://docs.google.com/spreadsheets/d/11mAAAna0pzyY2xnBt0nok8tG-5ZonR3Q4R6DvTYLiZAI/edit?usp=sharing>
- Maps can show us when to expect shortages and where, can help farmers time production
  - Map displayed of fruit and tree nuts: concentrated supply is in the west, distribution flows from west to east but there are a few areas in the northeast and south that grow them
  - Expectation that urban production will increase in 11 areas over the next 20 years
- National grocers association has independent grocers maps
- Map of food flows between counties shows that a lot of areas are not getting food but this also contains movement of corn for ethanol, etc.
  - They're looking at creating new maps that are more accurate for local food movement
- USDA has more recent maps/graphs:
  - Show that most food is moved by truck, so we can see where a certain product is coming from. Mexico is primary mover of commodities
  - Will be helpful in regards to labor shortages, or if serious drought occurs to see which commodities are at risk for being in low supply and how local producers can fill those gaps
- Work in Europe around third party logistics to move food in a more cost effective way has useful findings:
  - Has been helpful for food banks in WI
  - In the first mile of moving product from farm to processor, if you share a common vehicle you can share efficiencies
  - If you share a food terminal for independent businesses, 7% reduction of emissions

## Breakout 1 notes- Food access mapping

**Question:** Have you done any work with the map around connecting the supply chain?

- Question is around the use of this to connect the regional supply chain and facilitate that flow?
- How to connect this regionally? Any multi-state connections?

**Response:** The idea of doing something regionally is beneficial and something we're thinking about. Our farm team has been changing the way they're operating to get products out to local residents and they've been creating a map to help with this, too.

- **From chatbox:** Farm to Institution New England is trying to do a google drive that allows farms and food hubs to post what they have available and connect to food banks and processors looking for product and ingredients:



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[https://docs.google.com/spreadsheets/d/1hxTCuFVUCv4ad-\\_VIOGhOsDcYmwLXMkm5chzRF6wODM/edit#gid=877771653](https://docs.google.com/spreadsheets/d/1hxTCuFVUCv4ad-_VIOGhOsDcYmwLXMkm5chzRF6wODM/edit#gid=877771653)

- Market Maker has been around a while and has food product sources mapped for commerce: <https://foodmarketmaker.com/main/mmsearch>

**Question:** Is the interactive map and the back end some kind of software platform? or custom code written in house?

**Response:** ArcGIS, Google maps are two platforms. The NH map was built on ArcGIS.

- Video tutorial on creating a map using excel and google maps:  
<https://www.youtube.com/watch?v=I3Cd063FFB4>

**Question:** Any conversation about partnering across extension to do this in other states and share your format/ code/ form, etc....

**Response:** The governor of PA saw this and reached out. The individual who developed this map has been thinking critically about how to share this work with others and how to not duplicate. We're thinking about what is the best way for state partners to do this and use it.

**Question:** How do we input information into maps while lessening the burden on farmers and local producers? How do local maps and regional maps interact? Can they pull from each other?

**Response:** we've done it in layers and partnering with a diverse range of organizations, including dept of Ed, public health centers, and other partners - not relying exclusively on Extension

- NH is a small state, has a collaborative group that meets weekly, lots of communications, keeping work coordinated
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**Comment:** *From COG in Eastern NC:* five county region starting a food asset map, food councils, depts of health, schools, daycare etc, some local farmers with some Arc GIS expertise, hoping to really engage his community. Data, community engagement, institutional input

**Comment:** *From Penn State:* Statewide assn for markets managing food asset list. GIS capacity, map launching this week from PSU. Extension completed assessment of whole state. Also looping in food access via working with food policy councils

*Outstanding questions:*

How did the data flow to the project from governmental agencies, Ngo's etc? How long did it take for you to get it to this point?

**Breakout 2 notes- Food distribution patterns**



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**Question:** where did you get the commodities by volume chart?

**Answer:** List of map references here:

<https://docs.google.com/spreadsheets/d/11mAAAna0pzxY2xnBt0nok8tG-5ZonR3Q4R6DvTYLiZA/edit?usp=sharing>

**Comment:** Need for consistent approach to mapping food systems regionally that could be rolled up into national work to improve accuracy of national work and increase nimbleness of understanding of regional systems

- **Response:** Used to be large regional terminal markets that facilitated price discovery, USDA tracked delivery data. As vertical integration has progressed, there is less access to data. Privatization of the food system is a huge problem with respect to data access.

**Question:** What does planning for resiliency look like moving forward?

- **Response:** Duplication of services inefficient but necessary for access, private entities won't pay for this duplication. We are in a time of change – COVID is a huge disruption but we can expect disruption to continue. Climate disruptions to food systems will continue. We aren't thinking carefully about how production impacts food movement – specifically with respect to dairy. Dairy oversupply for a long time but COVID exacerbated the issue which led to milk dumping. How to feed people and minimize risk for farmers? Oversupply leads to dumping but can't stop milking a cow because of the animal's biology. Culling cows isn't a solution because meat processing has slowed – farmers left with all of the risk.

**Comment:** Many farmers (esp small farmers) have been left in dangerous situations because they put all of their eggs in very few baskets, a few restaurant accounts for example. Need to map *risk* of farmer accounts – not just how profitability. Opportunity for supply chain mapping.

**Comment:** Institutional disruption has been major category of change for farmers/fishermen/producers with institutional contracts. Pre COVID it seemed that institutional contracts reduced risk for producers. Farm to Institute New England developing way to look at regional food system in NE – looking for partners so as to not duplicate efforts.

### From Chatbox:

Good article on food distribution 101:

<https://civileats.com/2020/04/15/food-distribution-101-what-happens-when-the-food-supply-is-disrupted-by-a-pandemic/?fbclid=IwAR3HqMJ72b48O3bjhJMgywM8fUrMYR7hptO3uqzoMOOF0ra6G1FdWk9hwow>



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Book referenced by Michelle: Concentration and Power in the Food System by Philip H. Howard, he also has some great visualizations of concentration in the food system on his website: <https://philhoward.net/>

Link to a list of some example COVID-19 related food maps:

[https://docs.google.com/spreadsheets/d/1x04FTThH4OBynIPpZ\\_tDRXq0aWFw2mauKsgRHWjGIJ8/edit?usp=sharing](https://docs.google.com/spreadsheets/d/1x04FTThH4OBynIPpZ_tDRXq0aWFw2mauKsgRHWjGIJ8/edit?usp=sharing)

Comments:

- Bucks Co PA Foodshed Alliance did a regional study as to where food is coming from. It is a few years out of date now.
- National food system analysis is funded by NSF by Konar Research Group:  
<http://mkonar.cee.illinois.edu/>
- <https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=1499ec293fed4fc587e2c559099a7e64>
- Stuart Altschuler, Director of Analytics for Trenton Health Team, one of NJ's regional health hubs. We have developed a food assets map for Trenton:  
<http://tvs.maps.arcgis.com/apps/webappviewer/index.html?id=ad7f7ef0a53a4ad2aff2c04c60eda307>

### **Additional Map Chat:**

New Hampshire mpas were made using ArcGIS Online. No desktop software was used.

Brian Moyer : we are using esri also

Molly Riordan : Absolutely, Jen Faigel. Greater coordination among us = greater chance for change.

Mary Embleton : Puget Sound map:

<https://seattlecitygis.maps.arcgis.com/apps/webappviewer/index.html?id=1499ec293fed4fc587e2c559099a7e64>

Stuart Altschuler : Stuart Altschuler, Director of Analytics for Trenton Health Team, one of NJ's regional health hubs. We have developed a food assets map for Trenton:

<http://tvs.maps.arcgis.com/apps/webappviewer/index.html?id=ad7f7ef0a53a4ad2aff2c04c60eda307>

From Michelle Miller : I just organized a group of researchers and practitioners to work on food flow. Maybe there is opportunity to figure out a template for regional flow mapping. @Marilyn Sitaker, would you be game?

Stuart Altschuler : Lots of great ideas from the UNH extension! Thanks for the presentation.



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Ashley Rella : How do we create a coalition of organizations like the ones on this call that can help amplify our individual voices and coordinate our message about how we want our food system to look like and operate.

Susan Paykin : Curious is anyone has seen any food system/access maps that does not use Esri?

Nicole Wright :

<https://kkp.maps.arcgis.com/apps/MapJournal/index.html?appid=8b1bbc6fe969493b9ce307fabdcf776c>

Michelle Miller : The model that Megan Konar developed has a county component but county level data is insufficient. I wonder if we could work with her to develop the model to serve regional systems? If you want to work on this, let me know.

Jocelyn Tutak : @Susan Paykin, we have done this in the past, but are relying on Esri for our COVID response for speed

Shannon Hauck : There are a lot of options for GIS: QGIS, Arc GIS Online, Arc GIS Pro ArcMap, Story Mapping etc.

David Lee : Thanks to you all...important work. Keeping our communities fed and healthy.

Molly Riordan : @Michelle Miller, our region would be VERY interested in that model

Gabrielle Powell : Megan Konar does not have data granular enough to work at Local Food System scale. I had reached out to her to support Chicago. reach out to me, Michelle

Laurie White : Could the various mapping platforms be a separate tab on the spreadsheet? with some recommendations, maybe?

Michelle Miller : NYC did a great study on food flow for the last mile for the city. Not a map, but very visual - Five Borough Food Flow

Mariah DeLeo : Here's Seattle's Food Emergency Map:

[https://public.tableau.com/profile/city.of.seattle.human.services#!/vizhome/Covid-19Seattle-AreaEmergencyFoodResources/COVIDEmergencyFood\\_1](https://public.tableau.com/profile/city.of.seattle.human.services#!/vizhome/Covid-19Seattle-AreaEmergencyFoodResources/COVIDEmergencyFood_1)