

# Exogenous Factors of COVID-19 Spread

By Ben Mauss

A dark blue diagonal gradient bar that starts from the bottom left and extends towards the top right, covering the lower half of the slide.

# Overview

Data Description

COVID-19 Trends  
and Exogenous  
Factors Contributing  
to Spread

Solutions

# The Data



# The Data

Data was collected from all over the internet including:

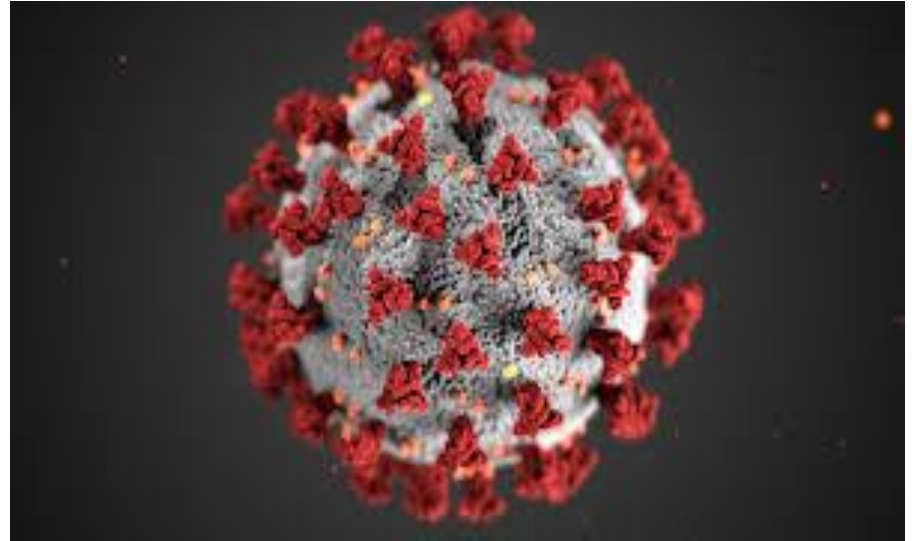
- Johns Hopkins University
- US Census
- Amazon Web Services
- Center for Disease Control

Data included details such as:

- State's Daily Reported Confirmed and Probable COVID-19 Cases (County Level)
- Locational Data
- Number of Hospitalized and in ICU
- Number of Deaths per Day/ Total
- Number of COVID-19 Tests Administered per Day
- 2019 County Population Estimates

# COVID-19

- Highly contagious respiratory infection
- Symptoms vary in severity by age and immune health; mostly flu-like
- “The primary and most important mode of transmission for COVID-19 is through close contact from person-to-person” -CDC.gov



# Top 5 States

# Top 5

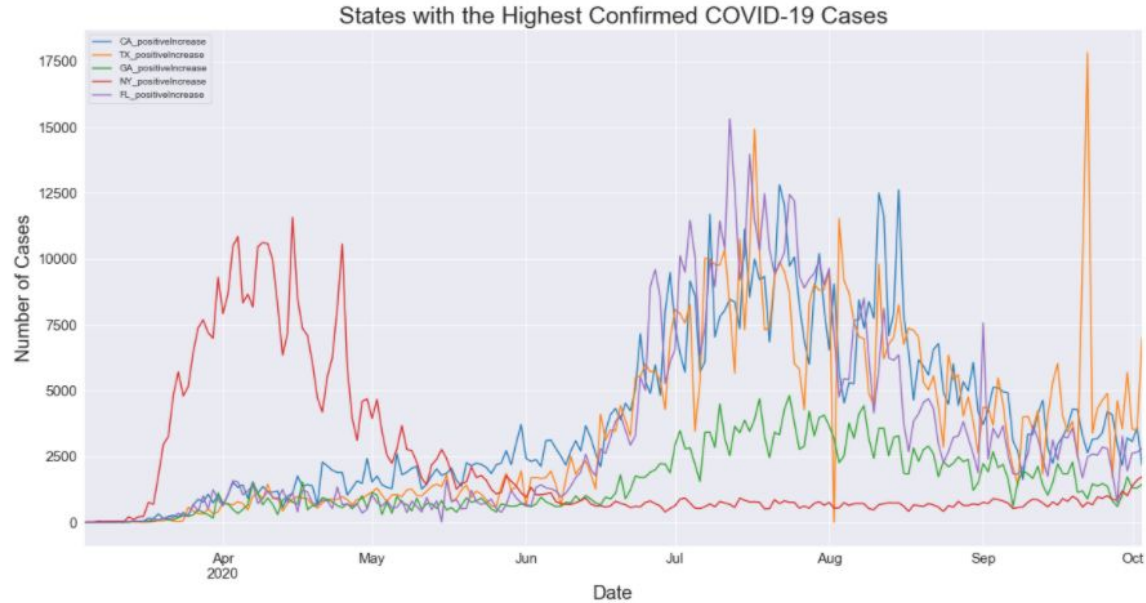
California

Florida

Georgia

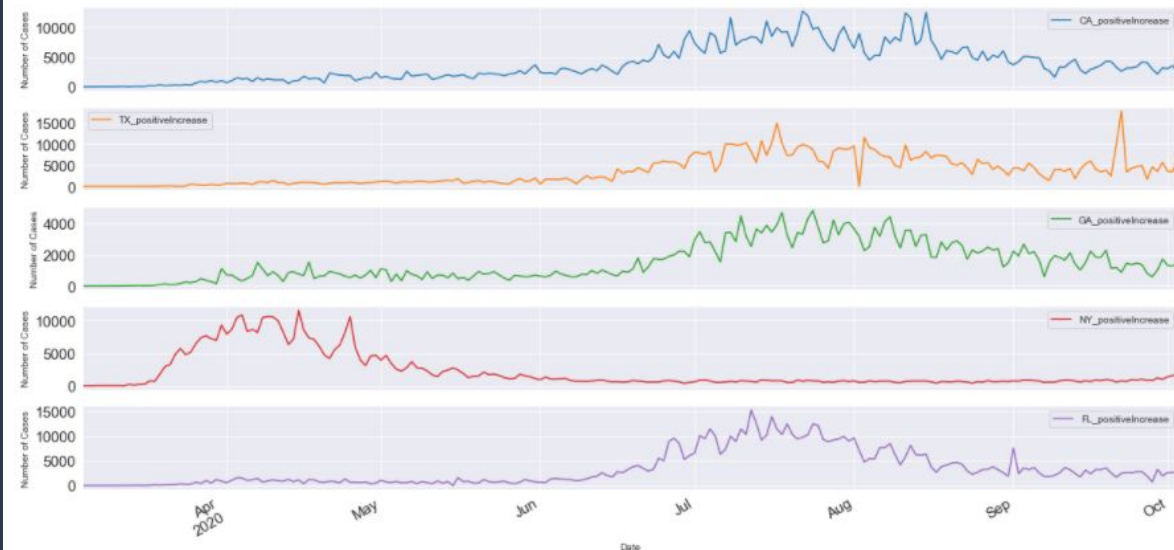
New York

Texas



# Summer Trend

- NY has a rough start and stabilizes
- All others experience exponential increase in mid-to late-June and peak in mid-July
- 11 other states follow this summer trend:
- Alabama, Arizona, Idaho, Louisiana, Mississippi, Nevada, Ohio, South Carolina, Tennessee, Utah, Washington, Oregon, Missouri





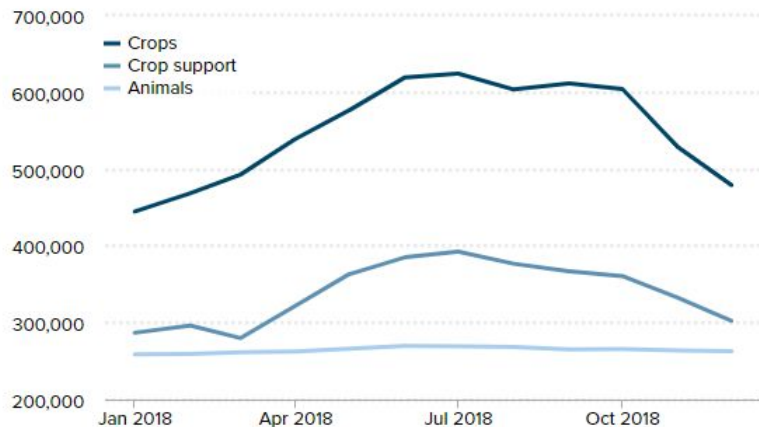
# Exogenous Factors

Who are at more risk during the summer?

# Summer Farming and Seasonal Farmworkers

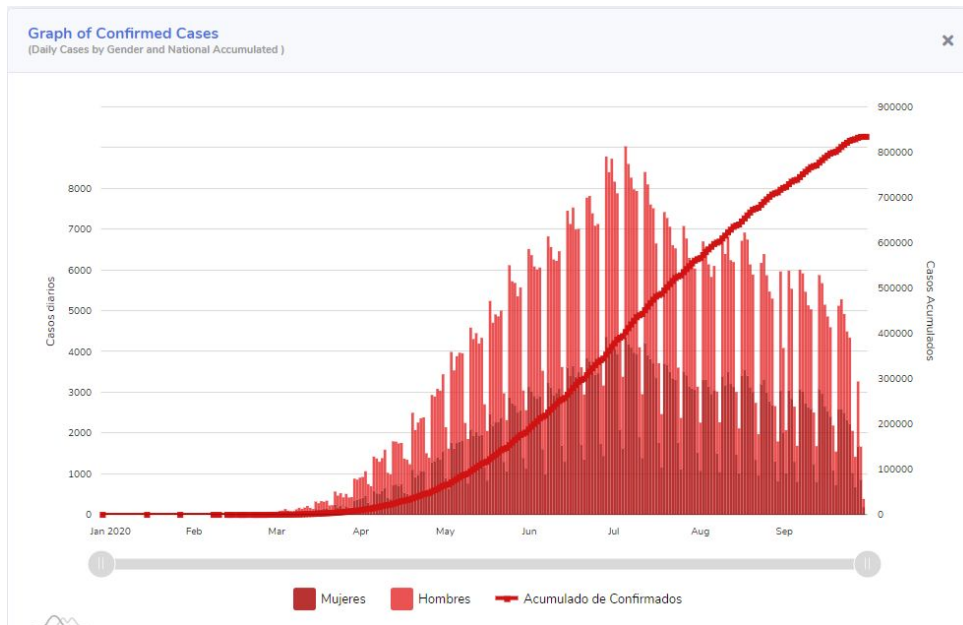
## Farmworker employment increases in spring and peaks in the summer

Unemployment-insurance-covered employment in crop, animal, and crop support agriculture, 2018



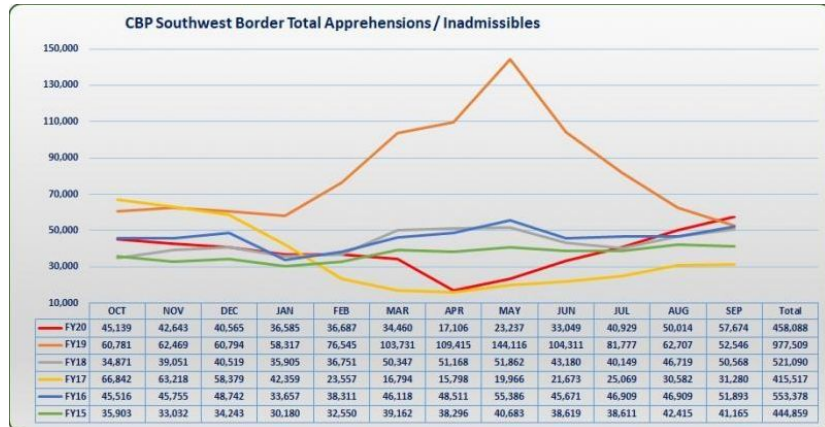
- Schedule for hiring seasonal farmworkers follows similar trend
- Chemicals, pesticides, and cramped quarters leave farm workers at a higher risk for respiratory infections

# Where are Seasonal Workers from?



- 75% of Seasonal Workers were born in Mexico
- Mexico has been experiencing similar summer trend (possibly due to the same farming problems)
- Some have H-2A visas
- Considered guests and are entitled to:
  - Adequate Shelter
  - Safe working conditions

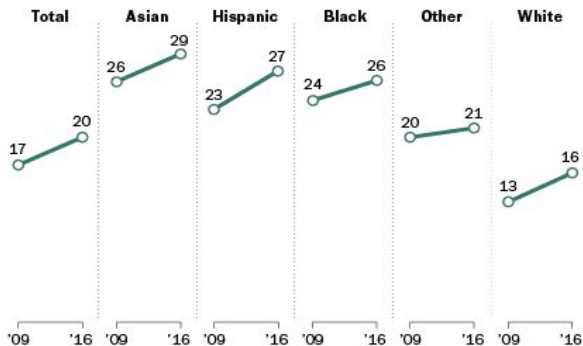
# Undocumented Farmworkers



- Most Seasonal Farmworkers are undocumented immigrants
- Border crossings increasing since April
- Due to their status, they are not entitled to the same protections as H-2A workers
- Often share makeshift or converted housing

**Whites less likely than other racial and ethnic groups to live in multigenerational households**

*% of population in multigenerational households*



Note: Multigenerational households include at least two adult generations or grandparents and grandchildren younger than 25. Hispanics are of any race. Asians include Pacific Islanders. Whites, blacks and Asians are single-race only and include only non-Hispanics. "Other" includes non-Hispanics in remaining single-race groups or multiracial groups.  
Source: Pew Research Center analysis of 2009 and 2016 American Community Surveys (IPUMS).

PEW RESEARCH CENTER

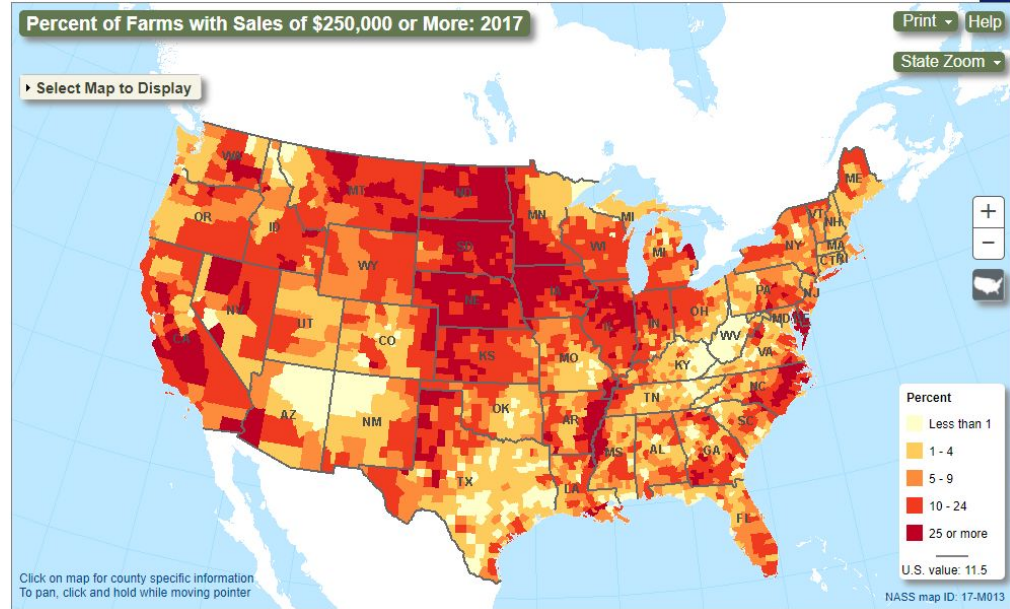
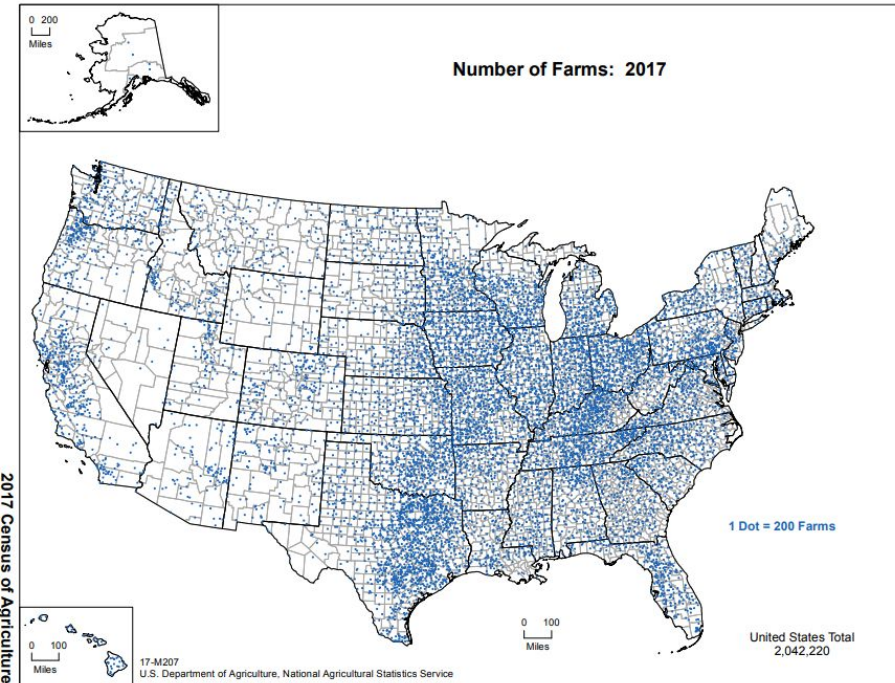
- Living Conditions are cramped, whether on or off the farm
- Self-Quarantine/Social Distancing almost impossible.
- “We’re afraid of this illness. But we are more afraid that we won’t be able to make a living.” -Maura Fabian to New York Times



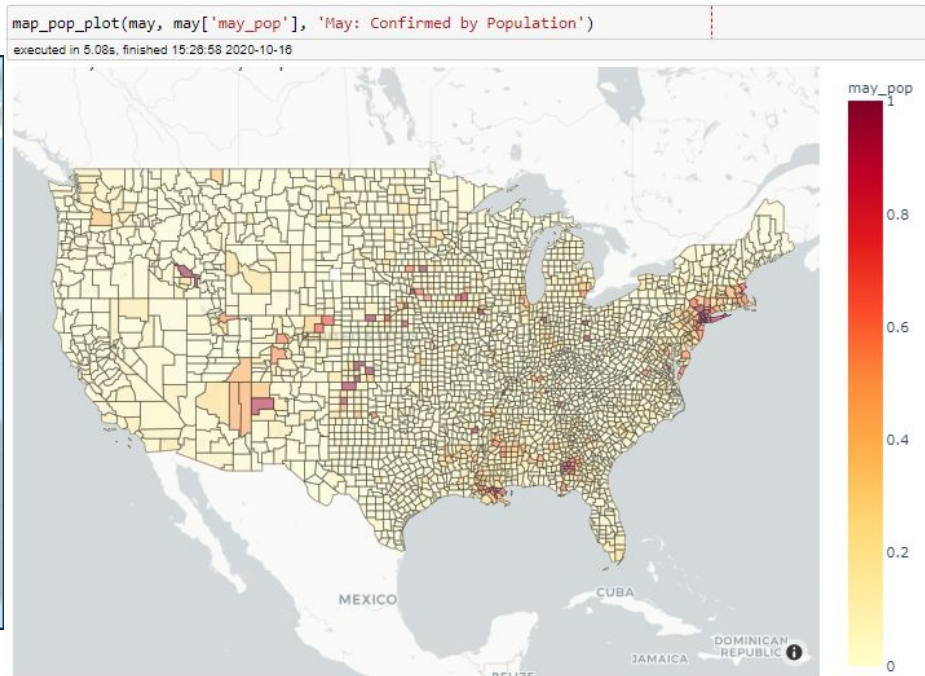
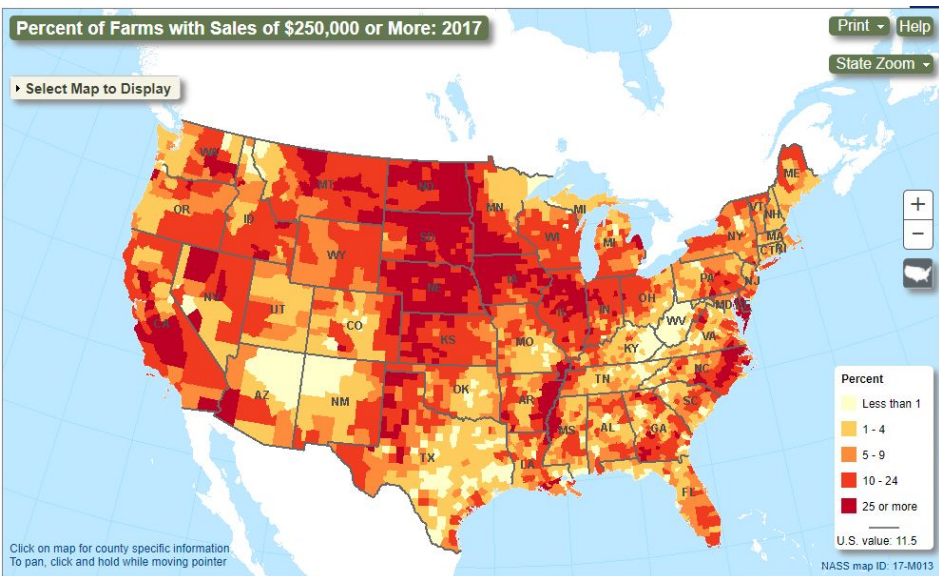
A garage converted to house farmworkers in Mendota, Calif. Max Whittaker for The New York Times

# Living Conditions

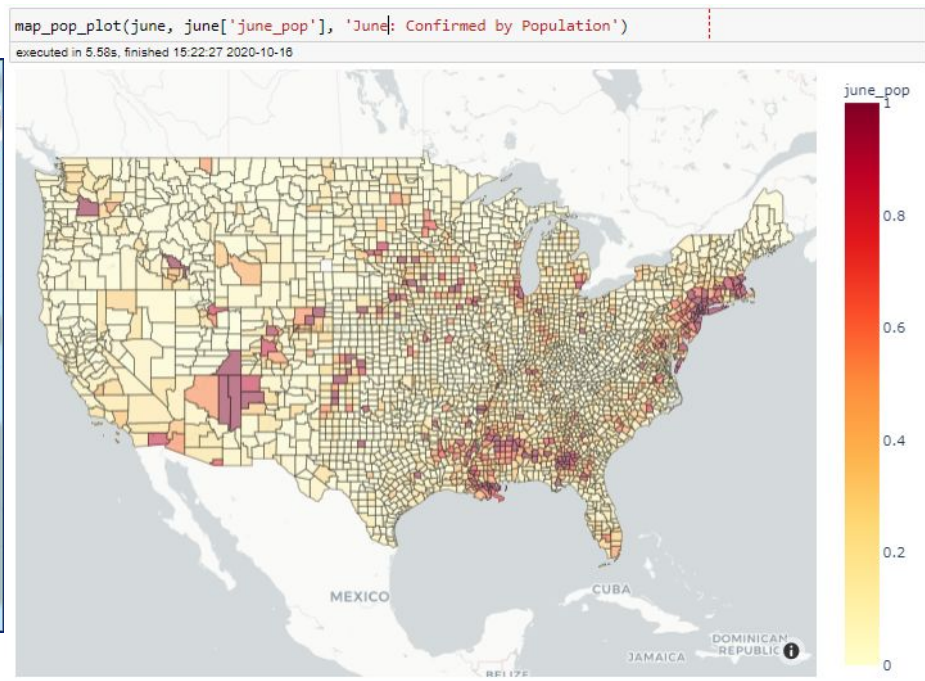
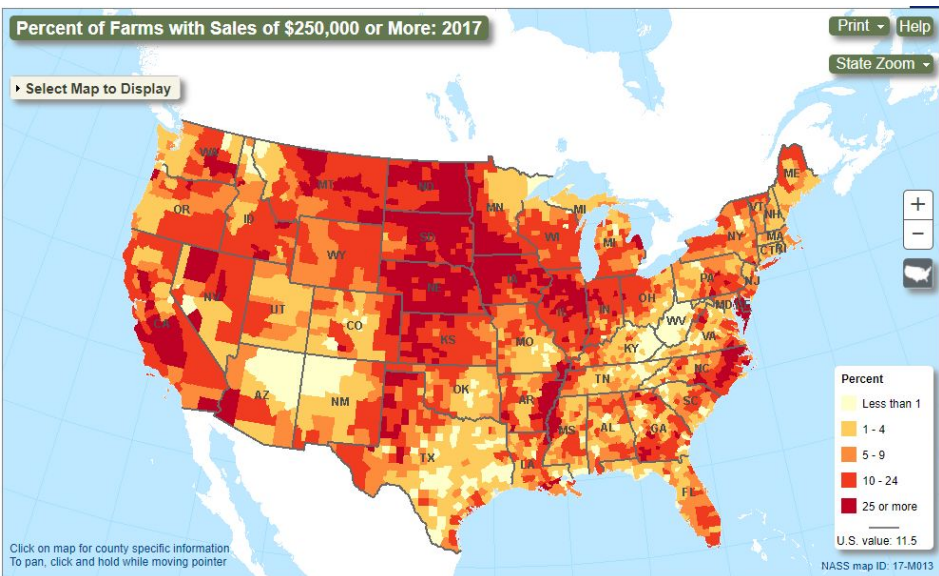
# Farm Locations





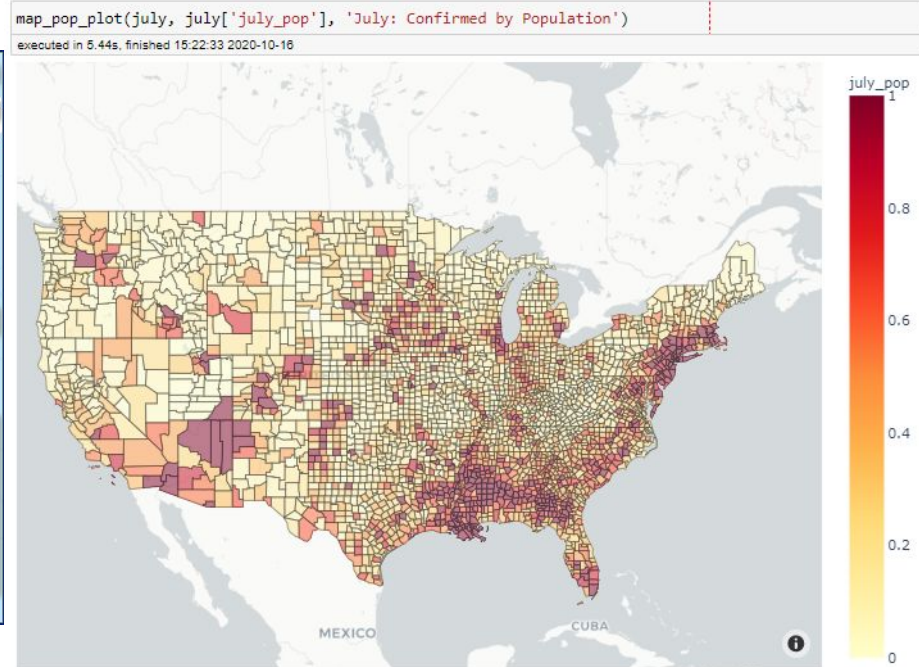
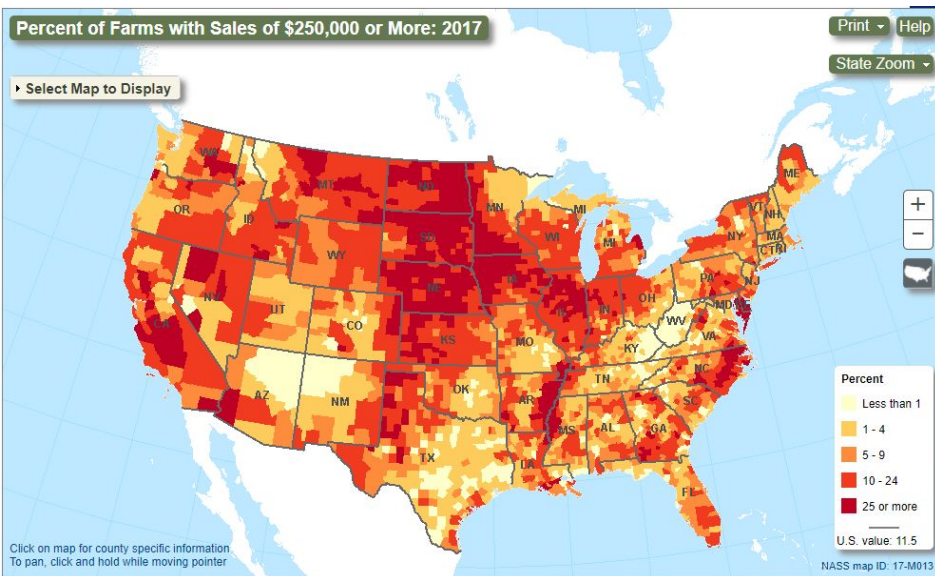


May

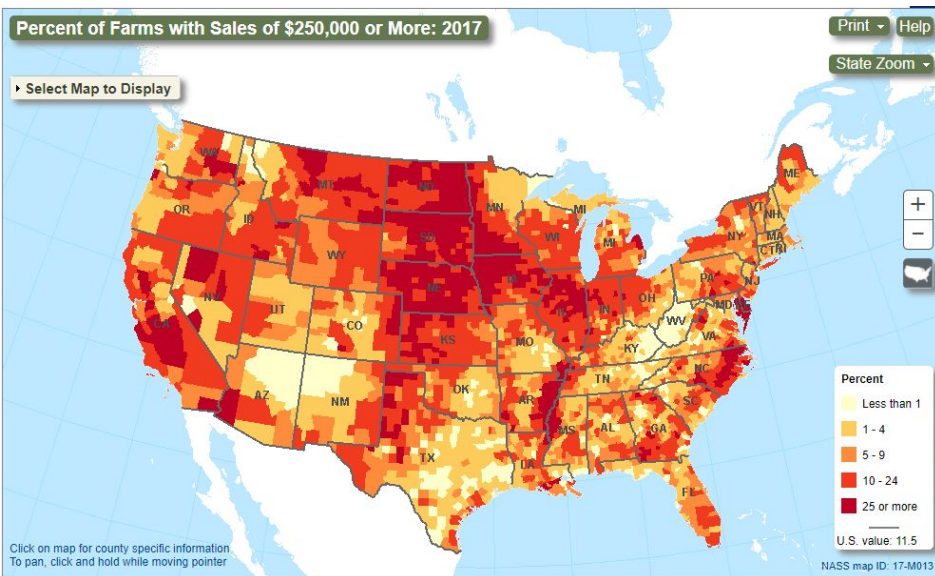


June



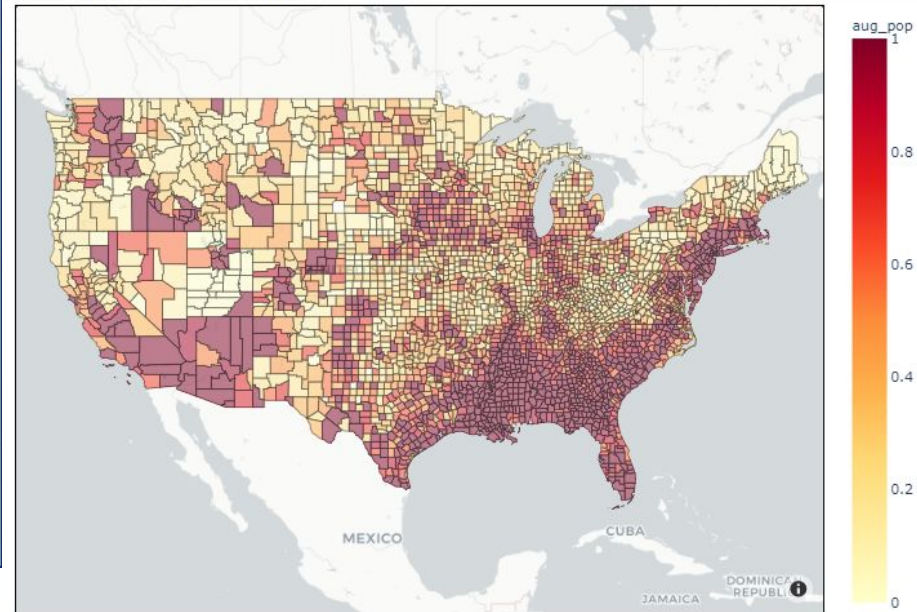


July



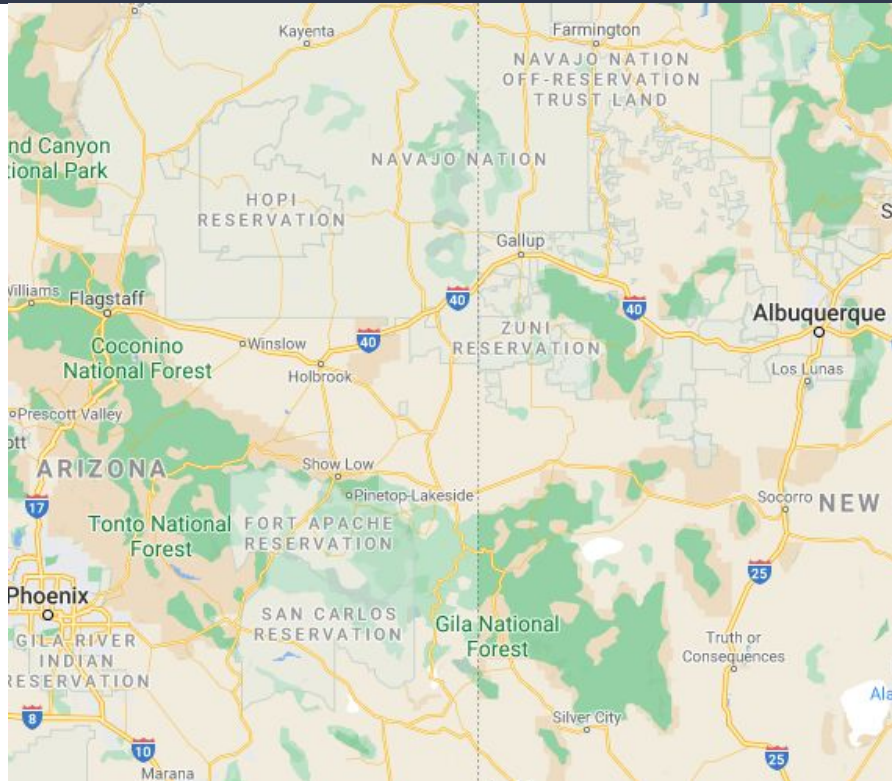
```
map_pop_plot(august, august['aug_pop'], 'August: Confirmed by Population')
```

executed in 5.37s, finished 15:22:39 2020-10-16



# August

# Native American Reservations



- Unemployment on Native American Reservations 7x higher than US
- Homelessness and overcrowding due to lack of resources to make proper housing
- 15% of homes lack water
- 33% of homes do not have:
  - adequate plumbing
  - kitchen facilities
  - bedrooms

# Socioeconomic Disparity

Rate ratios compared to White, Non-Hispanic Persons	American Indian or Alaska Native, Non-Hispanic persons	Asian, Non-Hispanic persons	Black or African American, Non-Hispanic persons	Hispanic or Latino persons
Cases <sup>1</sup>	2.8x higher	1.1x higher	2.6x higher	2.8x higher
Hospitalization <sup>2</sup>	5.3x higher	1.3x higher	4.7x higher	4.6x higher
Death <sup>3</sup>	1.4x higher	No Increase	2.1x higher	1.1x higher

# Conclusions and Recommendations

- There is a correlation between Seasonal Farm work and the increase in confirmed cases over the summer season.
- Recommend:
  - Provisions taken to protect ALL Seasonal Farmworkers, regardless of citizenship
  - Work with Tribe Leaders and Contractors to employ Native residents in the construction of housing, providing plumbing and other amenities to improve living conditions
  - Contact your state representatives and tell them that the improvement of socioeconomic conditions for people of color should be a top priority.



# Future Work

- Redo study using latest Census data
- Investigate how broad the definition of “Probable Cases” is per state and how many of those cases actually turn positive.
- Study the occupations of people who have contracted COVID-19

# Sources

NYC Coronavirus Updates-

<https://www.nycgo.com/coronavirus-information-and-resources-for-travelers/>

ABC News, *As Florida begins to reopen state businesses, data shows no significant drop in COVID-19 case numbers-*

<https://abcnews.go.com/US/florida-begins-reopen-state-businesses-data-shows-significant/story?id=70747130>

NY.gov, *Metrics to Guide Reopening New York,*

<https://forward.ny.gov/metrics-guide-reopening-new-york>

ABC News, *Timeline: The first 100 days of New York Gov. Andrew Cuomo's COVID-19 response,*

<https://abcnews.go.com/US/News/timeline-100-days-york-gov-andrew-cuomos-covid/story?id=71292880>

NBC New York, *NYC Orders Hotels to Ban Some Hotspot Tourists; 2 More States Land on Quarantine List*

<https://www.nbcnewyork.com/news/local/cuomo-to-update-quarantine-list-as-new-york-virus-numbers-remain-in-check/2572422/>

NPR.org, *Welcome To New York, Traveler. Now Please Begin Your Quarantine*

<https://www.npr.org/2020/08/08/900432094/nyc-expands-enforcement-of-state-travel-restrictions>

Forbes, *Will New York City Survive The Covid Pandemic And Recession?*

<https://www.forbes.com/sites/richardmccahey/2020/08/14/will-new-york-city-survive-the-covid-pandemic-and-recession/#aff3c6266d8d>

Student Action with Farmworkers, *United States Farmworker Factsheet,*

<https://saf-unite.org/content/united-states-farmworker-factsheet>

Washington Post, *Suspension of visa processing for Mexican seasonal workers hits U.S. farms, fisheries,*

<https://www.washingtonpost.com/business/2020/03/18/seasonal-farmworkers-visas-food-supply-chain-coronavirus/>

The Conversation, *How coronavirus threatens the seasonal farmworkers at the heart of the American food supply,*

<https://theconversation.com/how-coronavirus-threatens-the-season>

# More Sources

The Conversation, *How coronavirus threatens the seasonal farmworkers at the heart of the American food supply*,  
<https://theconversation.com/how-coronavirus-threatens-the-seasonal-farmworkers-at-the-heart-of-the-american-food-supply-135252>

U.S. Customs and Border Protection, *Southwest Border Migration FY 2020*,  
<https://www.cbp.gov/newsroom/stats/sw-border-migration>

The New York Times, *Farmworkers, Mostly Undocumented, Become 'Essential' During Pandemic*,  
<https://www.nytimes.com/2020/04/02/us/coronavirus-undocumented-immigrant-farmworkers-agriculture.html>

Economic Policy Institute, *Coronavirus and farmworkers: Farm employment, safety issues, and the H-2A guestworker program*,  
<https://www.epi.org/publication/coronavirus-and-farmworkers-h-2a/>

American Progress, *Protecting Farmworkers From Coronavirus and Securing the Food Supply*,  
<https://www.americanprogress.org/issues/economy/reports/2020/04/23/483488/protecting-farmworkers-coronavirus-securing-food-supply/>

United States Department of Agriculture, *Number of farms 2017*  
[https://www.nass.usda.gov/Publications/AgCensus/2017/Online\\_Resources/Ag\\_Atlas\\_Maps/17-M207-RGBDot1-largetext.pdf](https://www.nass.usda.gov/Publications/AgCensus/2017/Online_Resources/Ag_Atlas_Maps/17-M207-RGBDot1-largetext.pdf)

Instituciones del Gobierno de México,  
<https://datos.covid-19.conacyt.mx/>

Navajo Relief Fund, *Living Conditions*,  
[http://www.nativepartnership.org/site/PageServer?pagename=nrf\\_livingconditions](http://www.nativepartnership.org/site/PageServer?pagename=nrf_livingconditions)



# Thank you!

Questions? Email me!

[ben.mauss@gmail.com](mailto:ben.mauss@gmail.com)