

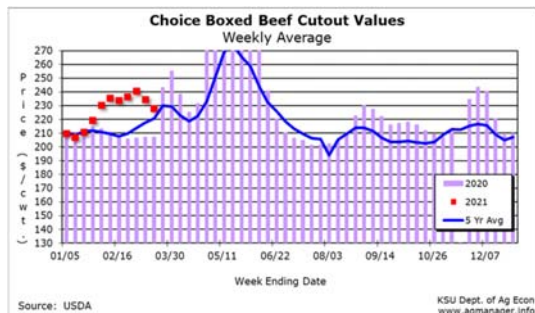
# Balancing Beef Processing Efficiency and Resiliency Post-COVID-19

Bina, Tonsor, Schulz, and Hahn  
Manhattan, KS  
August 19, 2021

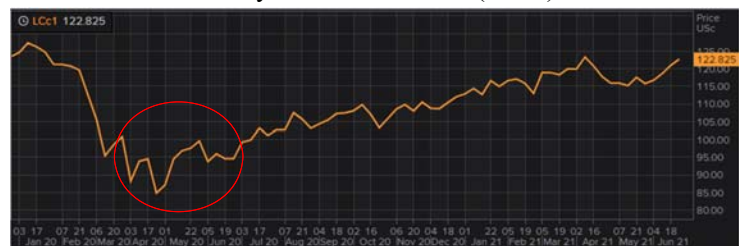
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\* This research is partially supported by the USDA Economic Research Service. The opinions shared are solely of the authors.

## Introduction

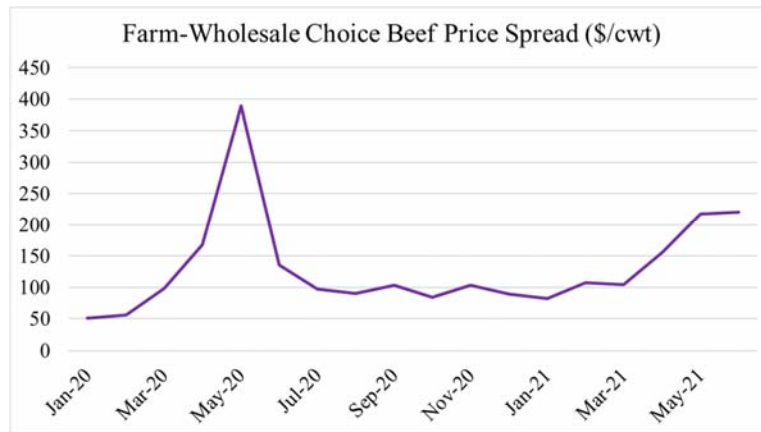


Nearby live cattle futures (\$/cwt)



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# Introduction

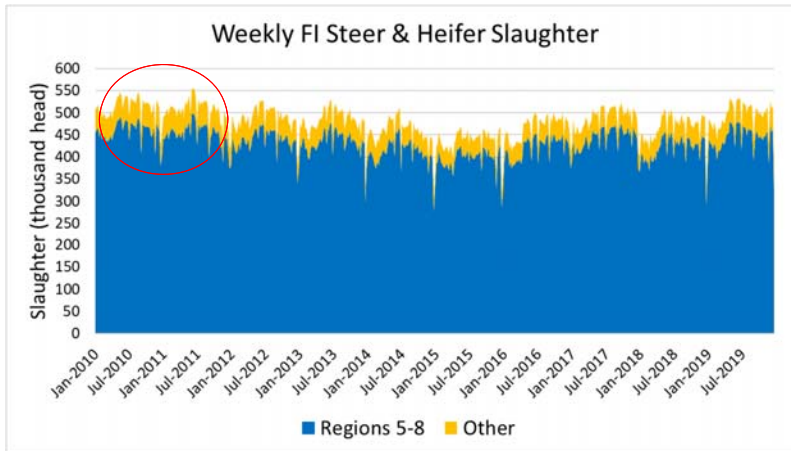


Data Source: USDA ERS calculations based on BLS and AMS data

# Introduction

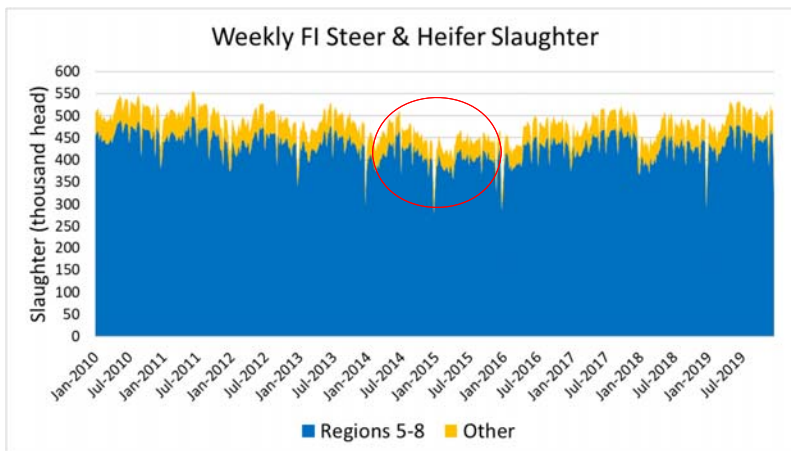
- Shortages in retail grocery and widening farm-to-wholesale price spreads fueled calls for industry change.
  - Note, price spreads do not include costs incurred in processing beef. A better assessment of \$/head profits is the “net marketing margin.” This margin for packers can increase *even in a competitive market* (Lusk, Tonsor, and Schulz, 2020).
- A proposed method to increase resiliency to major disruptions was to add physical slaughter capacity in the form of smaller processing facilities.
- Our research assesses the viability of this option.

# Pre-COVID-19



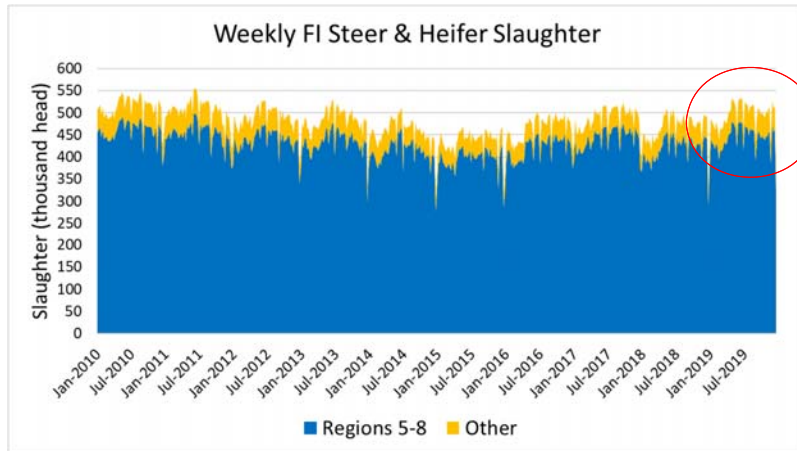
Data Source: USDA AMS, compiled by NASS

# Pre-COVID-19



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# Pre-COVID-19

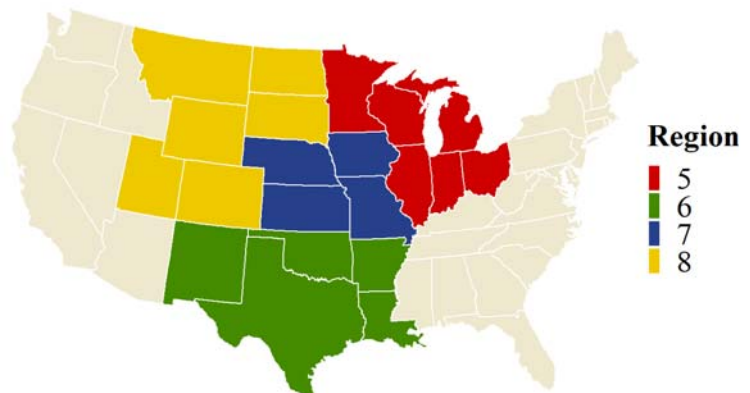


Data Source: USDA AMS, compiled by NASS

# Pre-COVID-19

## 2019 FI Steer & Heifer Slaughter

- Region 5: 6%
- Region 6: 18%
- Region 7: 52%
- Region 8: 12%



\*Region 5 FI heifer slaughter has not been reported since 2017.



## Pre-COVID-19

- Fluctuating cattle inventories can put pressure on relatively “fixed” beef processing capacity.
- Increasing cattle supplies result in a larger need for overtime slaughter operations.
  - 2.1% of weekly FI steer and heifer slaughter occurred on Saturdays in 2015.
  - 9.2% occurred on Saturdays by 2019.
- Already running full-bore, the stage was set for big issues in beef processing (and other labor-intensive industries).



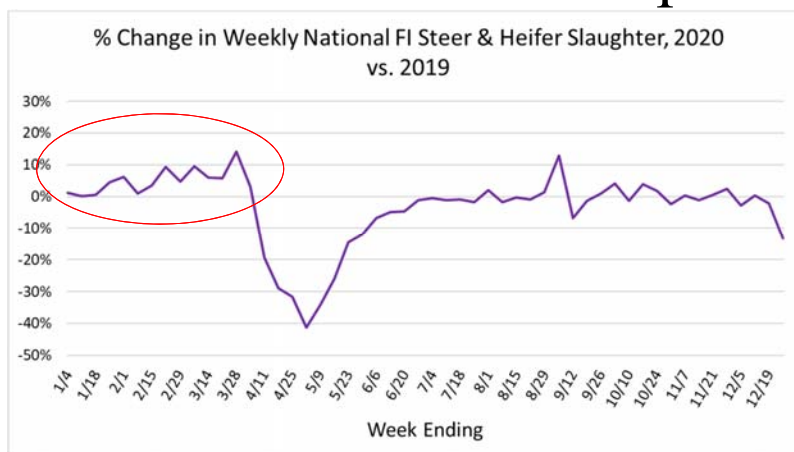
## COVID-19 National Impacts

- COVID-19 impacted *operational capacity*.
  - the amount able to be produced in a given amount of time, influenced heavily by labor
- This is in contrast to the 2019 Tyson plant fire in Holcomb, KS which wiped out *physical capacity* (rated or engineer-stated capacity).

# COVID-19 National Impacts

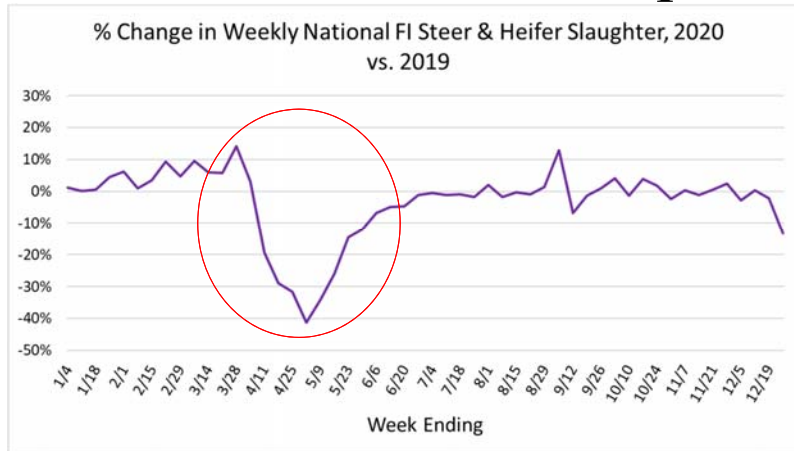
- Operational capacity of beef and pork plants was constrained during the pandemic in part due to labor shortages. As such, the meat processing sector was functioning below maximum physical capacity (Lusk, Tonsor, and Schulz, 2020).
  - Key point: Brick-and-mortar facilities can't produce without someone to turn the lights on.
- Almost half of the over 80 beef and pork plants having outbreaks temporarily halted production according to the Kansas City Federal Reserve (Cowley, 2020).

# COVID-19 National Impacts



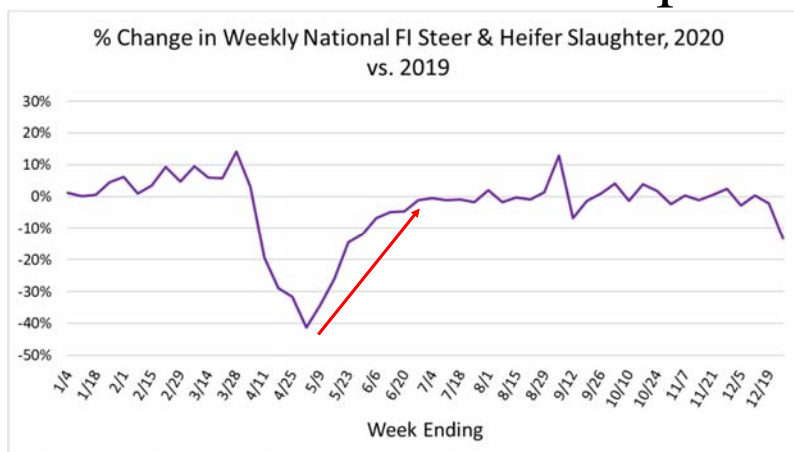
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# COVID-19 National Impacts



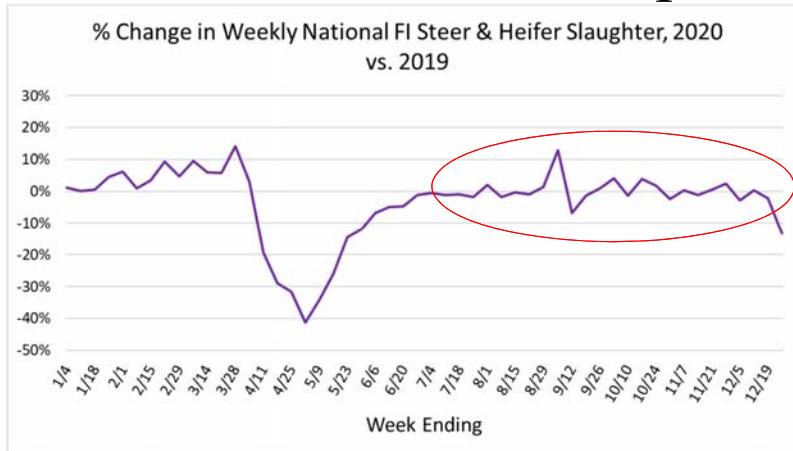
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# COVID-19 National Impacts



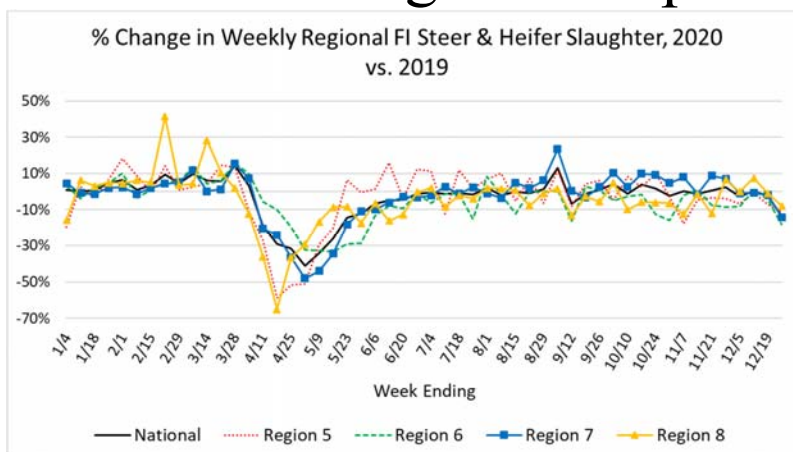
Data Source: USDA AMS, compiled by NASS

# COVID-19 National Impacts



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# COVID-19 Regional Impacts



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## COVID-19 Regional Impacts

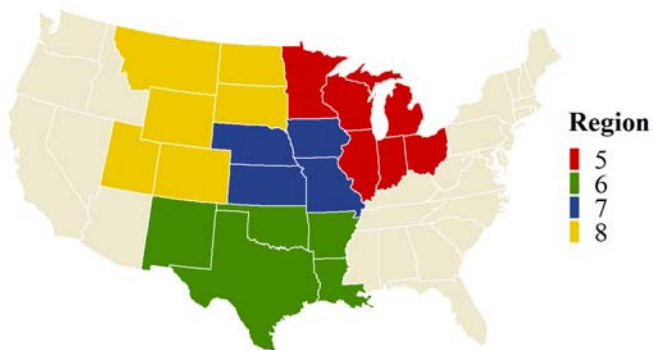
- Timing and magnitude of slaughter declines differed across regions.
  - Differing shutdown ordinances, differing rates of transmission, etc.
- Region 6's relatively lower decline in FI slaughter suggests geographic dispersion of packing plants may have lessened the COVID-19 impact on a national level.
- All regions experienced the same rapid recovery from slaughter disruptions.

## COVID-19 Regional Impacts

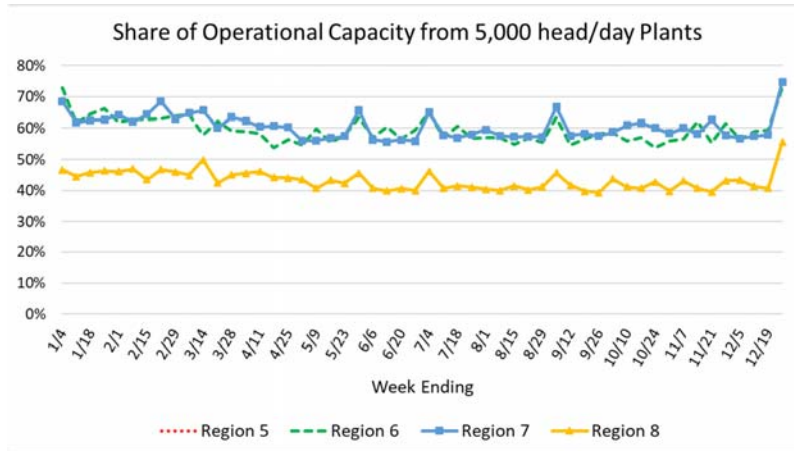
**FI Fed Beef Packing Plants by Physical Capacity**

Daily Slaughter Capacity (head)	Number of Plants			
	Region 5	Region 6	Region 7	Region 8
<1,000	3	0	4	1
1,000-1,999	0	1	2	1
2,000-4,999	1	1	4	2
5,000+	0	2	6	1

Source: Rabobank



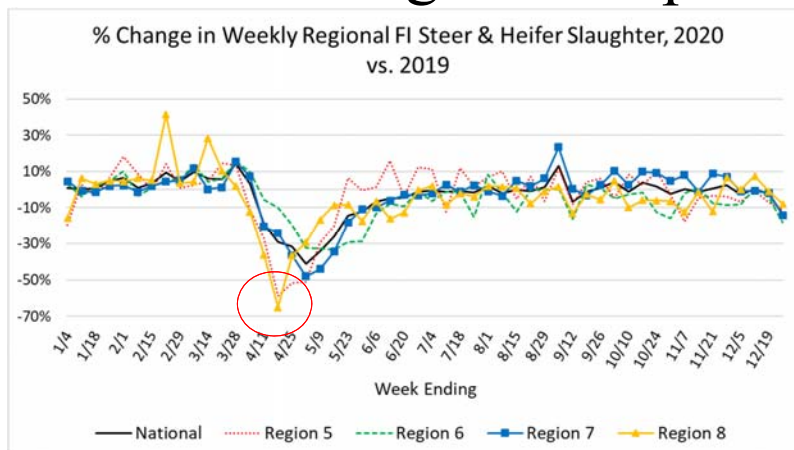
# COVID-19 Regional Impacts



\* No 5,000 head/day plants in Region 5.

Data Source: USDA AMS, compiled by NASS

# COVID-19 Regional Impacts



Data Source: USDA AMS, compiled by NASS



# Implications

- Regions with a heavier reliance on large plants did not fare any worse during the pandemic.
  - Adding physical capacity may not provide increased “resiliency” when labor is the constraint.
- Additional physical capacity may sit unused during “normal” times, adding costs to the system.

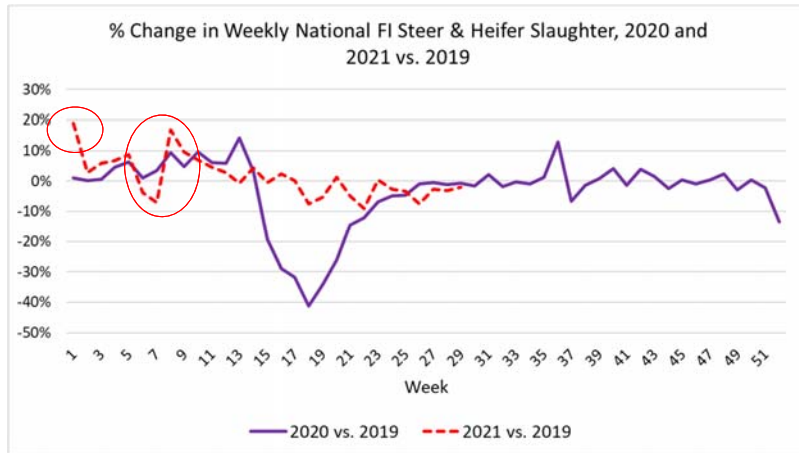


# Implications

- Larger processing plants allow for additional spacing between workers and may produce more per unit of labor relative to smaller operations.
  - Disease transmission per plant and per pound of meat produced may be lower for larger plants.
- Policy prescriptions to the pandemic must be data-driven or we risk unintended consequences and needless cost increases in the food system.



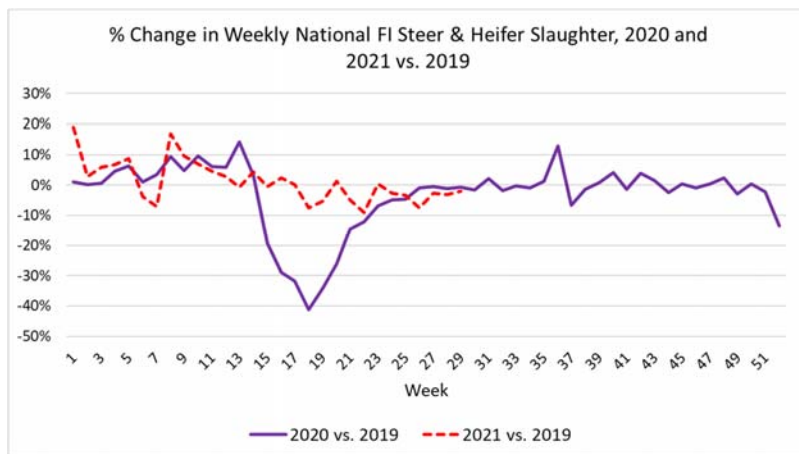
# Where Are We Now?



Data Source: USDA AMS, compiled by NASS



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