



December 17, 2020

Significant Events and Progress Involving the Meat and Poultry Industry during the COVID-19 Pandemic

Summary

President Trump declared the Coronavirus pandemic (COVID-19 or pandemic) a national emergency on March 13. The meat and poultry industry, and the livestock sector more generally, has been at the forefront of much of the discussion regarding the pandemic's adverse economic impact and worker safety.

The North American meat industry implemented important protocols and procedures to protect its workforce from the threats posed by the pandemic. The learning curve dealing with this unprecedented disruption was steep at times and challenges were presented regarding testing and acquiring personal protective equipment (PPE). But from the pandemic's inception meat and poultry companies have worked with federal, state, and local health officials to exchange information and implement practices and procedures to best protect workers.

Those efforts have paid dividends, as evidenced by the limited number of COVID-19 cases in meat packing plants over the past several months, even as the number of cases nationally surged beyond those seen in the spring. The perceptions regarding worker safety based on April 2020 conditions likely do not match the September 2020 realities of worker safety in meat packing plants.

The adverse economic impact of the pandemic also is undeniable. Economic experts in April estimated COVID-19's cost to the cattle and beef sector to be \$13.6 billion, and that number likely is low. Similarly, economic experts estimate the cost of the pandemic to hog producers, who were expecting 2020 to be a positive year, to be \$5 billion or more. The pandemic's economic impact extends beyond the direct effects on livestock producers to the communities in which they live and work and the communities with meat processing facilities.

As the "second wave" of new cases hits it will be important to consider all the factors in play, including the plethora of programs and procedures meat packers and processors successfully implemented to enhance worker safety and the economic consequences of knee jerk decision-making to close plants.

Historical Background

On February 5, 2020, Centers for Disease Control and Prevention (CDC) Director Robert Redfield posted a tweet that masks were unnecessary for the public and later told the House of Representatives Foreign Affairs Committee “There is no role for these masks in the community.”¹ He went on to say “These masks need to be prioritized for health care professionals that as part of their job are taking care of individuals.”² And on March 1 Surgeon General Jerome Adams posted a tweet to the public to stop buying masks to protect oneself from coronavirus: “They are not effective.”³

President Trump declared COVID-19 a national emergency on March 13. Two days later Americans were ordered by the CDC to avoid large gatherings, New York closed public schools and some cities and states closed restaurants.⁴ On March 18 the Department of Homeland Security identified critical infrastructure sectors, which included food manufacturers.⁵

The North American Meat Institute (NAMI) issued sanitation guidance for the meat industry on March 20 and made available protocols for companies to follow when an employee tests positive for COVID-19 on March 23. Through the latter part of March, it became increasingly apparent the challenges associated with the pandemic were greater than originally expected. Meat packing and processing plants closed temporarily or slowed line speeds due to employee illnesses and absenteeism and companies implemented screening procedures and protocols, acquired equipment and material to aid that implementation, procured PPE, and bolstered testing capacity.

On April 2 industry temperature taking and employee screening guidance was distributed and resources were developed to help companies obtain PPE. The next day the CDC reversed its policy and recommended Americans wear masks.⁶ On April 8 CDC issued guidance for critical infrastructure: workers were permitted to continue working following potential exposure to COVID-19, provided they remained asymptomatic and additional precautions were implemented to protect

¹ https://www.cnn.com/asia/live-news/coronavirus-outbreak-02-27-20-intl-hnk/h_0a2607bada22056c9fd10010734a9e1e;

² <https://twitter.com/cdcdirector/status/1225061262800719872?lang=en>

³ https://twitter.com/surgeon_general/status/1233725785283932160?lang=en

⁴ <https://www.whitehouse.gov/presidential-actions/proclamation-declaring-national-emergency-concerning-novel-coronavirus-disease-covid-19-outbreak/>

⁵ Cybersecurity & Infrastructure Security Agency. <https://www.cisa.gov/identifying-critical-infrastructure-during-covid-19>. Last accessed August 28, 2020.

⁶ <https://www.npr.org/sections/coronavirus-live-updates/2020/04/03/826219824/president-trump-says-cdc-now-recommends-americans-wear-cloth-masks-in-public>. Last accessed August 28, 2020.

them and the community.⁷ The industry created and distributed a document outlining regulatory requirements to which inspected establishments are subject and additional steps companies should take to address COVID-19 challenges. A document with questions to consider when employees test positive and thereafter created a testing protocol also was developed and distributed.⁸

On April 26 CDC and the Occupational Health and Safety Administration (OSHA) jointly issued interim guidance for meat and poultry facilities and on April 28 President Trump issued an Executive Order specific to meat and poultry processing, which has never been used to date.⁹ On May 5 Secretary of Agriculture Sonny Perdue sent letters to 56 meat and poultry processing companies, and several Governors, advising them to continue operating under the CDC/OSHA guidance.¹⁰ On May 6 industry developed and distributed a CDC/OSHA Guidance checklist and on May 22 CDC issued new guidance on contact tracing.¹¹

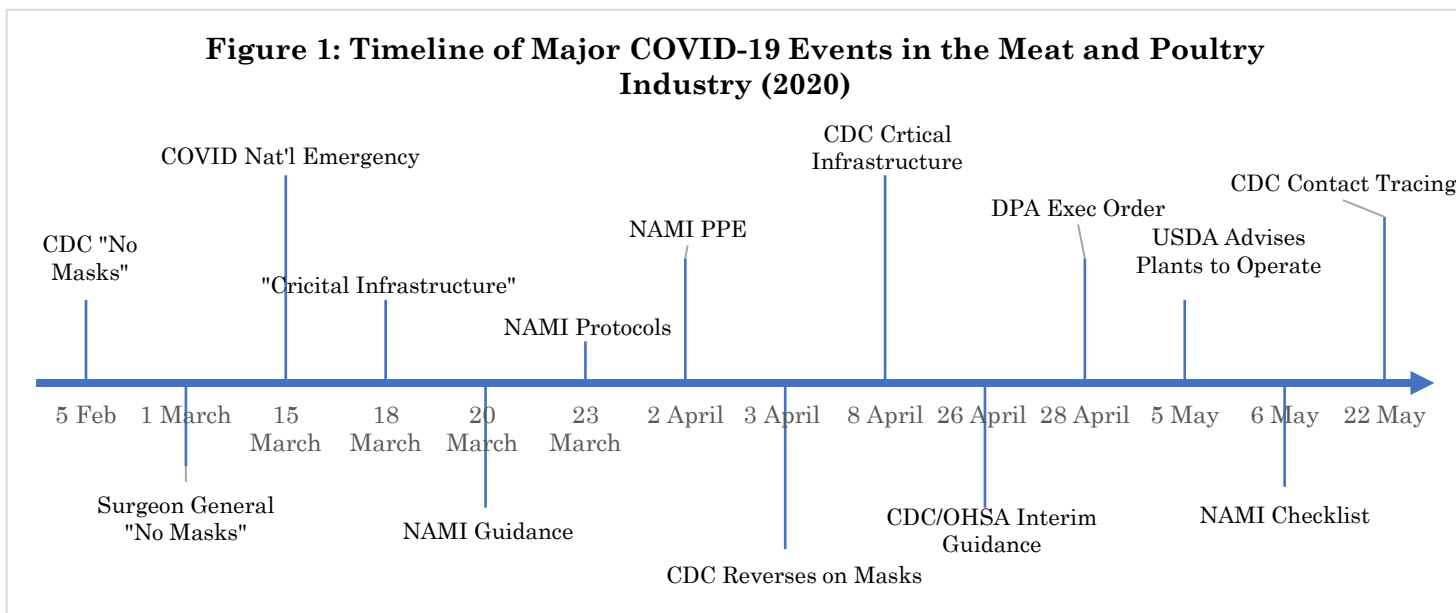


Figure 1: Timeline of Major COVID-19 Events in the Meat and Poultry Industry (2020). Source: see footnotes 1-11 in NAMI Significant Events and Progress Involving the Meat and Poultry Industry during the COVID-19 Pandemic. September 2, 2020.

⁷ <https://www.cdc.gov/coronavirus/2019-ncov/community/critical-workers/implementing-safety-practices.html>. Last accessed August 28, 2020.

⁸ <https://www.meatinsitute.org/ht/a/GetDocumentAction/i/167273>.

⁹ <https://www.osha.gov/news/newsreleases/national/04262020>.

<https://www.whitehouse.gov/presidential-actions/executive-order-delegating-authority-dpa-respect-food-supply-chain-resources-national-emergency-caused-outbreak-covid-19/>
<http://agwired.com/2020/08/31/nasda-honors-secretary-perdue/?shared=email&msg=fail>

¹⁰ <https://www.usda.gov/media/press-releases/2020/05/06/secretary-perdue-issues-letters-meat-packing-expectations>.

¹¹ <https://www.cdc.gov/coronavirus/2019-ncov/php/contact-tracing/contact-tracing-plan/contact-tracing.html>

Meat Packers and Processors Responded to Worker Safety Issues and with Success

Notwithstanding often unsubstantiated media claims, Coronavirus is not naturally present in meat and poultry production facilities: quite the contrary. Every day, these facilities, as they are required to by federal regulation, engage in extensive sanitization of production areas, which kills the virus.¹² Indeed, a plant does not run unless it passes “pre-op” sanitation inspection conducted by the Food Safety Inspection Service (FSIS) under the Public Health Information System guidelines. For an individual to get infected at a meat packing or processing plant COVID-19 has to be brought into the facility from the community. As the pandemic evolved meat packers engaged in extensive efforts to prevent that introduction.

The meat and poultry industry’s most valuable asset is its workforce. Without the dedicated employees who come to work to feed the nation and the world, the industry and the American agricultural economy would grind to a halt. Meat and poultry packing and processing companies took, and continue to take, the actions listed below, and more, to protect workers regarding COVID-19.

1. Taking employees’ temperature before entering the facility, using a hands-free thermometer or thermal imaging.
2. Asking employees COVID-19 exposure assessment questions before entering the facility.
3. Conducting mid-shift temperature checks.
4. Providing or ensuring access to on demand testing.
5. Sanitizing areas away from food production, *i.e.*, breakrooms, lunch rooms, locker rooms, *etc.* By law, food production areas must be sanitized routinely.
6. Ensuring detergents and sanitizers used effectively kill the Coronavirus.
7. Modifying facilities by adding tents and other shelters to provide more space to socially distance during breaks.
8. In some cases, slowing production lines, which may allow for some social distancing.
9. In some cases, staggering shifts, which means fewer employees in a facility at a particular time.
10. Staggering breaks and lunches to allow for better social distancing.
11. Adjusting employee traffic patterns in hallways and workflows to aid in social distancing.
12. Providing face masks and face shields to employees.
13. Erecting shields or barriers between employees on the production line, in cafeterias, and at break tables.
14. Educating employees on social distancing at home and in the community, *e.g.*, no carpooling, no large gatherings.

¹² 9 CFR Part 416.

15. Hiring staff dedicated to continuously clean facilities, including common areas beyond production areas.
16. Removing vulnerable employee populations from facilities, offering full pay and benefits.
17. Requiring sick employees to stay home from work.
18. Waiving short-term disability waiting periods.
19. Providing free, 100% preventive care to all employees.
20. Offering free online health services for virtual doctor visits.
21. Providing paid sick leave.
22. Restricting or not allowing visitor access to facilities.
23. Adhering to CDC, OSHA, EPA, FSIS, FDA guidelines and policies.

These actions and procedures to prevent COVID-19 spread on the job are based on CDC/OSHA guidelines and other expertise.

Implementing these procedures and taking these actions has proven successful in limiting and in many instances almost eliminating COVID-19 infections in meat packing and processing facilities. Figure 2 below shows the total number of case positives for the nation by week.¹³ The graph illustrates what has been reported extensively: the number of cases nationally rose rapidly from early March through early April, before peaking and leveling off. That is, until mid-June near the latter part of July. In early August case numbers began trending downward, with a second wave of national cases coming in October.

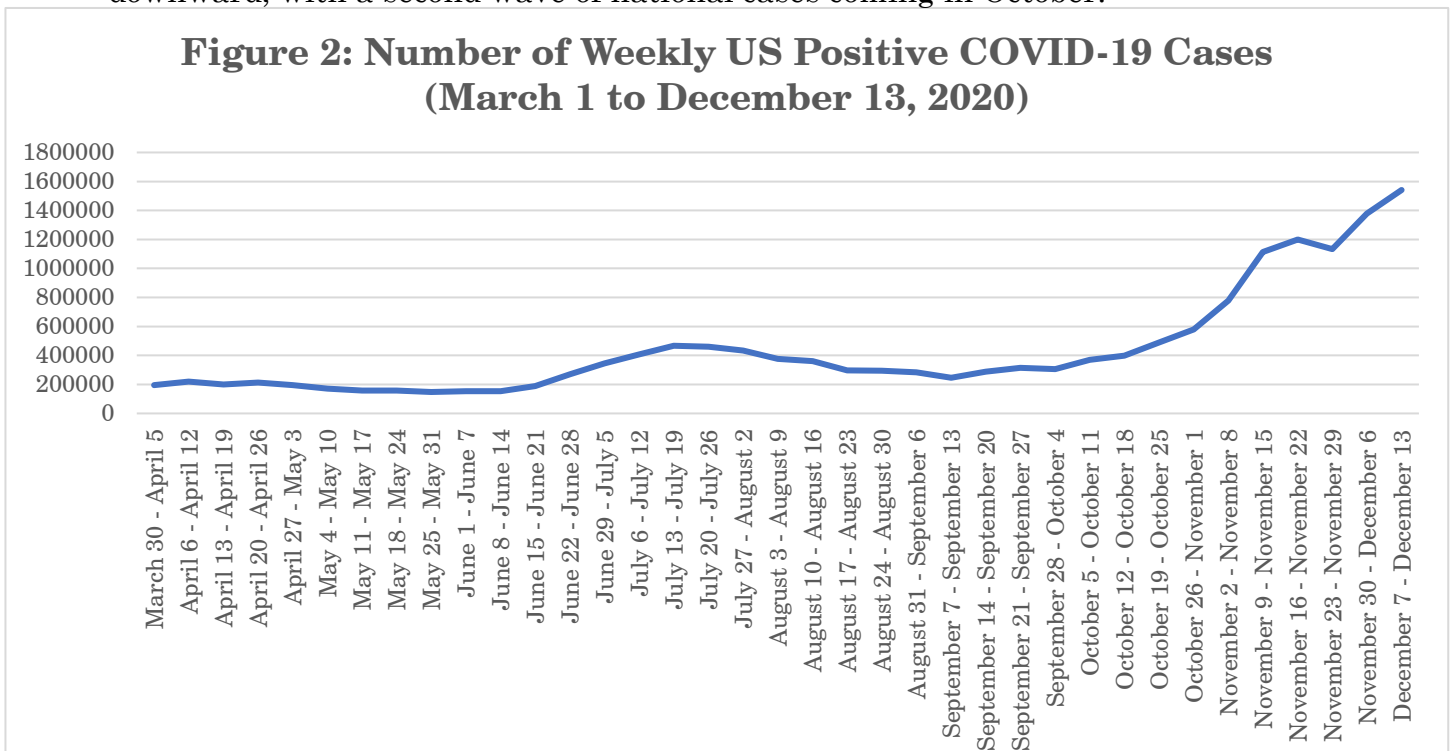


Figure 2: Number of Weekly U.S. Positive COVID-19 Cases (March 1 to December 13, 2020). Source: [New York Times](#), last accessed December 15, 2020.

¹³ Source: [New York Times](#), last accessed September 21, 2020.

Figure 3 tells a different story; a story largely of success, built on the ongoing vigilance of the meat and poultry processing industries. Figure 3 charts the number of meat and poultry employee positives, also week-by-week and covering the same period as Figure 2.¹⁴ Similar to the national pattern, the meat and poultry industry also saw an initial rise, with a peak in early May, about 10-14 days after CDC and OSHA issued their joint guidance for the meat and poultry industry.

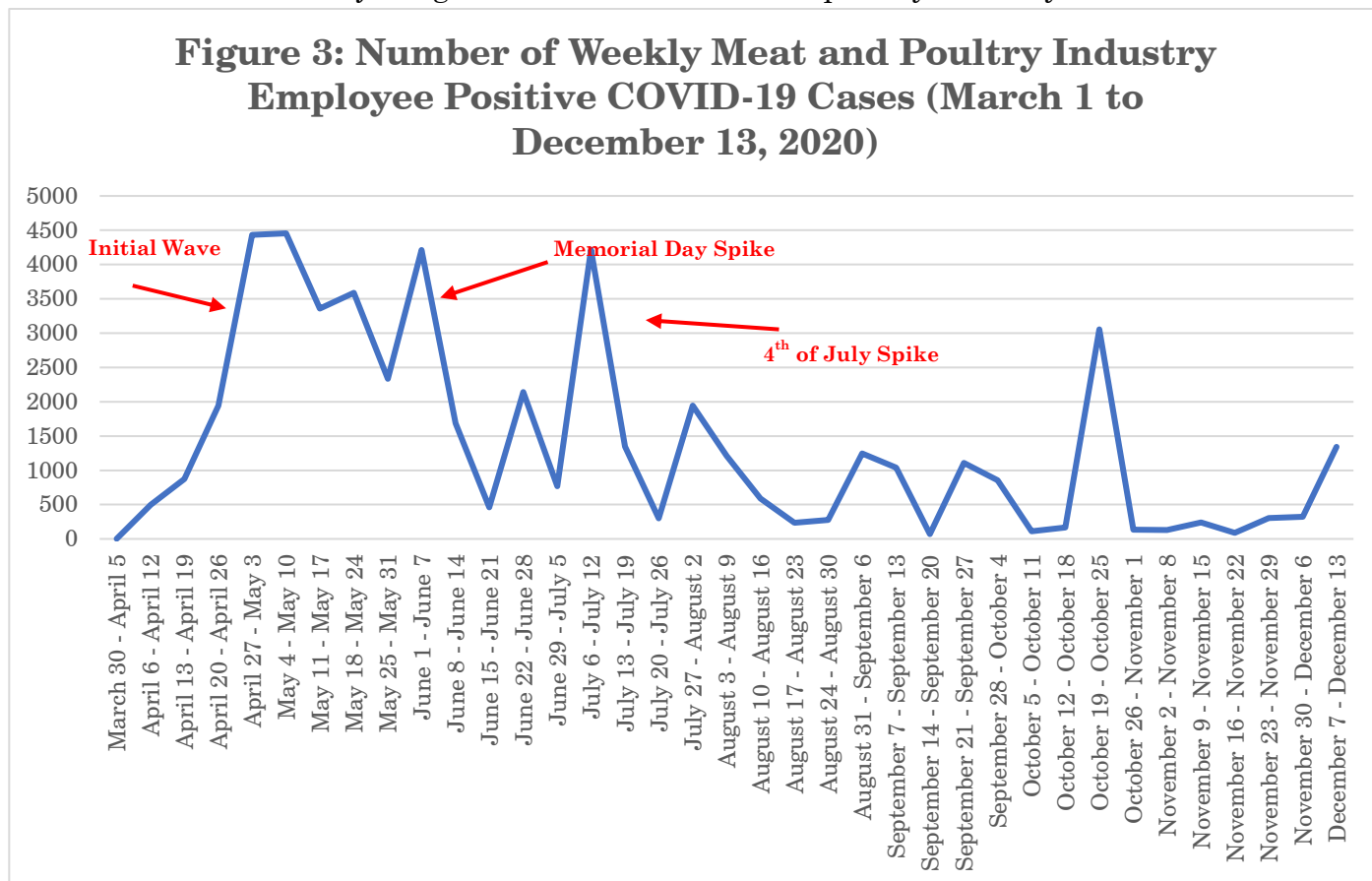


Figure 3: Number of Weekly Meat and Poultry Industry Employee Positive COVID-19 Cases (March 1 to December 13, 2020). Source: Food and Environment Reporting Network; last accessed December 15, 2020.

Cases in meat and poultry facilities trended sharply downward for several weeks while the number of national cases plateaued. National cases began their sharp increase for several weeks in June and July while cases in meat and poultry plants saw two sharp one-week spikes, the first almost certainly attributable to employee interactions away from meat and poultry plants during the Memorial Day holiday and the second almost certainly attributable to the July 4 holiday. As observed previously, for an individual to get infected at a meat packing or processing plant COVID-19 has to be brought into the facility from the community. Not surprisingly, after both holidays the number of positives fell sharply and have remained relatively low since, with only one short-lived spike in October.

¹⁴ Source: Food and Environment Reporting Network; last accessed September 21, 2020.

Figure 4, which overlays the trendlines in positive COVID-19 cases between the overall U.S. population and meat and poultry plant workers, illustrates the success the meat and poultry industry has had in containing COVID-19 infections and protecting employees.

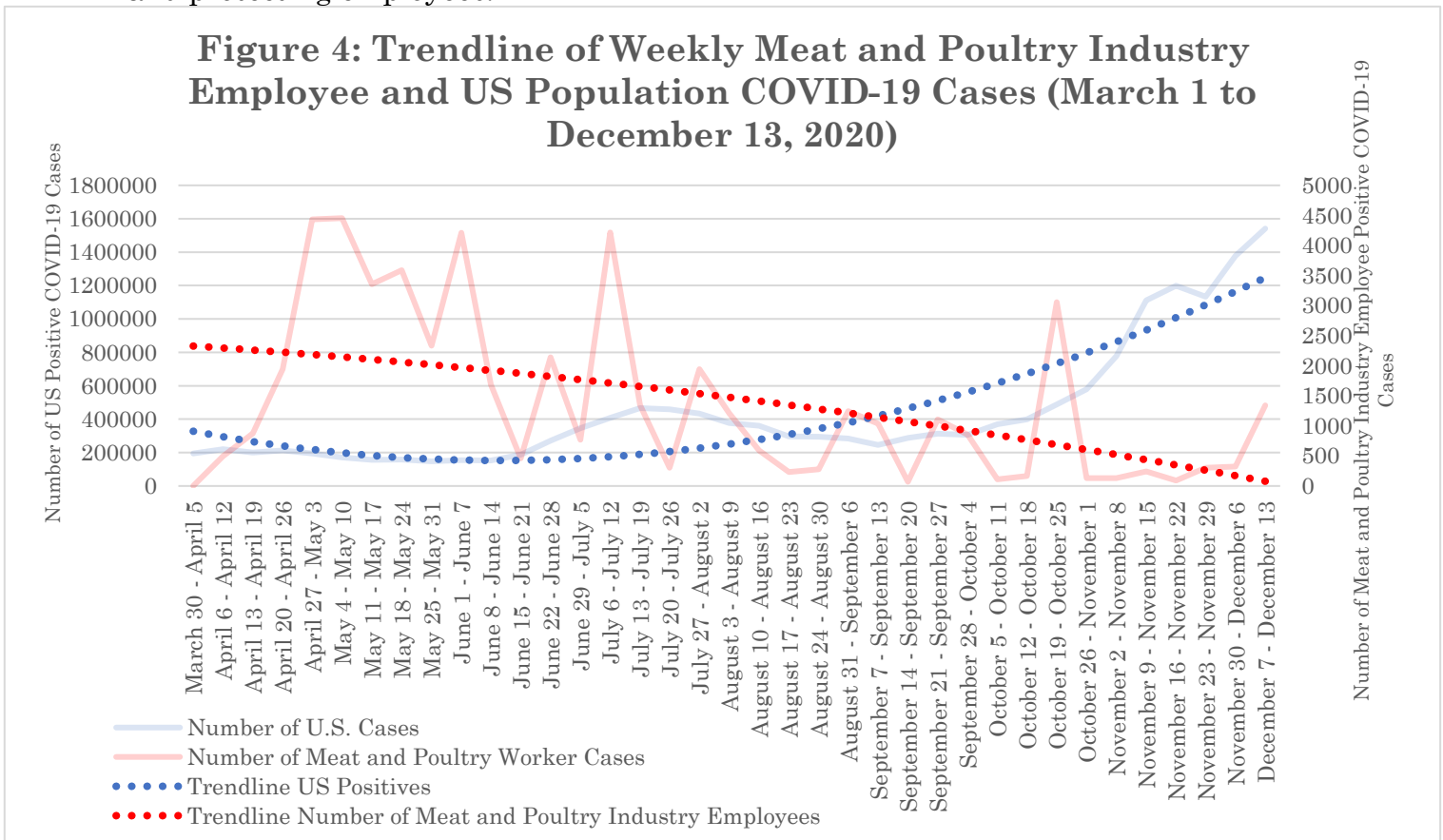


Figure 4: Trendline of Weekly Meat and Poultry Industry Employee and US Population COVID-19 Cases (March 1 to December 13, 2020). Source: Food and Environment Reporting Network; last accessed December 15, 2020. And [New York Times](#), last accessed December 15, 2020.

Considered together, these graphs support several conclusions. First, as with the rest of the country, the meat and poultry industry faced and endured challenges early in the pandemic. Those challenges ranged from inconsistent guidance offered by government (“don’t wear a mask” – “wear a mask”) to companies in all sectors competing to obtain limited PPE, to the time it takes to implement new protocols and procedures, install barriers, and reconfigure facilities.

Second, those protocols, physical barriers, screening procedures new layouts and procedures work. Although not the ideal “zero cases,” except for the “holiday weeks,” case numbers in meat and poultry dropped markedly and remain on that trend even as the country was setting new records for positive cases.

Third, the data highlight that COVID-19 is a community spread issue, which is a reminder that meat and poultry companies, like everyone else, need to be vigilant working with their employees to ensure the administrative and screening protocols are followed, masks are worn properly, sanitation is done routinely throughout the day, to list just a few actions.¹⁵

Finally, Figure 5 provides some context to meat and poultry’s place in the pandemic over the last 7 months. While generating considerable media attention, the number of cases associated with meat and poultry plants is almost imperceptible in the larger context, even at the peak spikes of meat and poultry plant positive cases.

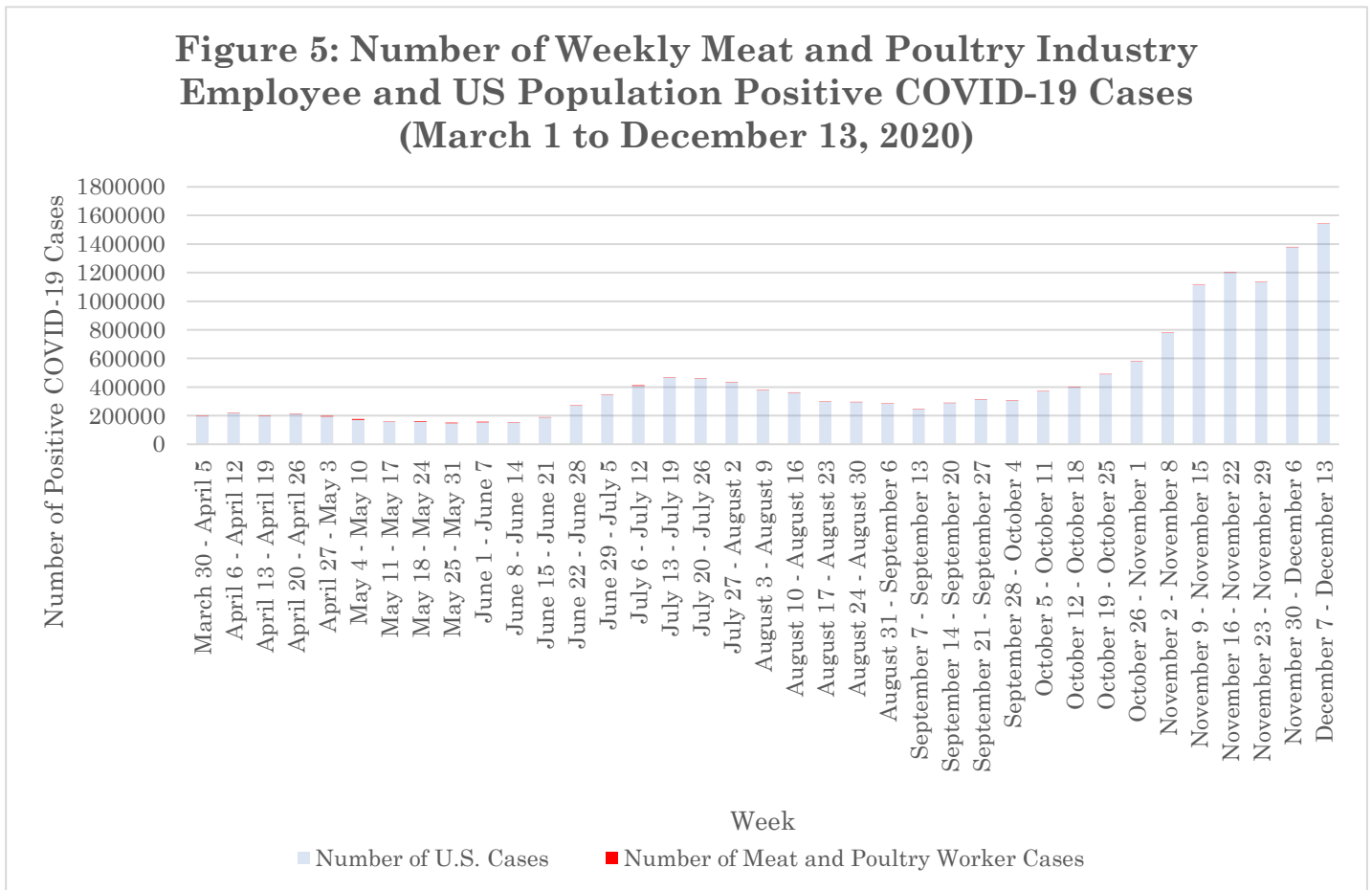


Figure 5: Number of Weekly Meat and Poultry Industry Employee and US Population Positive COVID-19 Cases (March 1 to December 13, 2020). Source: Food and Environment Reporting Network; last accessed December 15, 2020. And [New York Times](#), last accessed December 15, 2020.

¹⁵ <https://www.meatingplace.com/Industry/News/Details/93743> Last accessed August 28, 2020.

This information affirms the efficacy of the protocols and procedures and shows the considerable success in reducing significantly the number of coronavirus cases at plants during June, July, and August and into the second wave of October and November. A guest op-ed from the summer captures the essence of the discussion above and the need to continue to follow what has proven successful.

We are grateful that since June 1, we have had only nine positive cases among our Greeley plant workforce, while the state has had more than 27,000. We hope this is a result of our safety protocols, new ventilation systems, health screenings, physical distancing and abundant PPE.

We all face an unseen enemy that continues to spread. No one can be perfect in a moment like this, but we have fought every day, and we're committed to continue fighting, learning and improving to make things safer, better and stronger.¹⁶

Adverse Economic Impact on the Livestock Industry and Community

The economic impact the pandemic has had on the food and agricultural sector has been examined by several notable agricultural economists. That work, some of which was done early in the pandemic, continues but the inescapable conclusion is that the economic impact on the livestock sector, its communities, and the communities that meat and poultry plants call home has been catastrophic.

Economic Damage to the U.S. Livestock Industry

COVID-19 interruptions to the red meat packing industry have hurt cattle and hog producers as meat packers lost the capacity to slaughter and process livestock, creating a backlog of animals in the market, which negatively affected livestock prices.

Early in the pandemic the National Cattlemen's Beef Association (NCBA) commissioned the Oklahoma Cooperative Extension Service (OCES) and several distinguished agricultural economists to examine the impact COVID-19 was having and would have on the beef cattle industry. That [analysis](#) concluded that "[E]very sector of the beef cattle industry and cattle producers in every state have been significantly impacted by COVID-19. The total beef cattle industry impact of COVID-19 is an estimated loss of \$13.6 billion in total economic damage,"¹⁷

¹⁶ <https://www.greeleytribune.com/2020/08/22/guest-column-jbs-president-defends-covid-19-response/>
Last accessed August 28, 2020.

¹⁷ Economic Damage to the U.S. Beef Cattle Industry due to COVID-19, p.1.

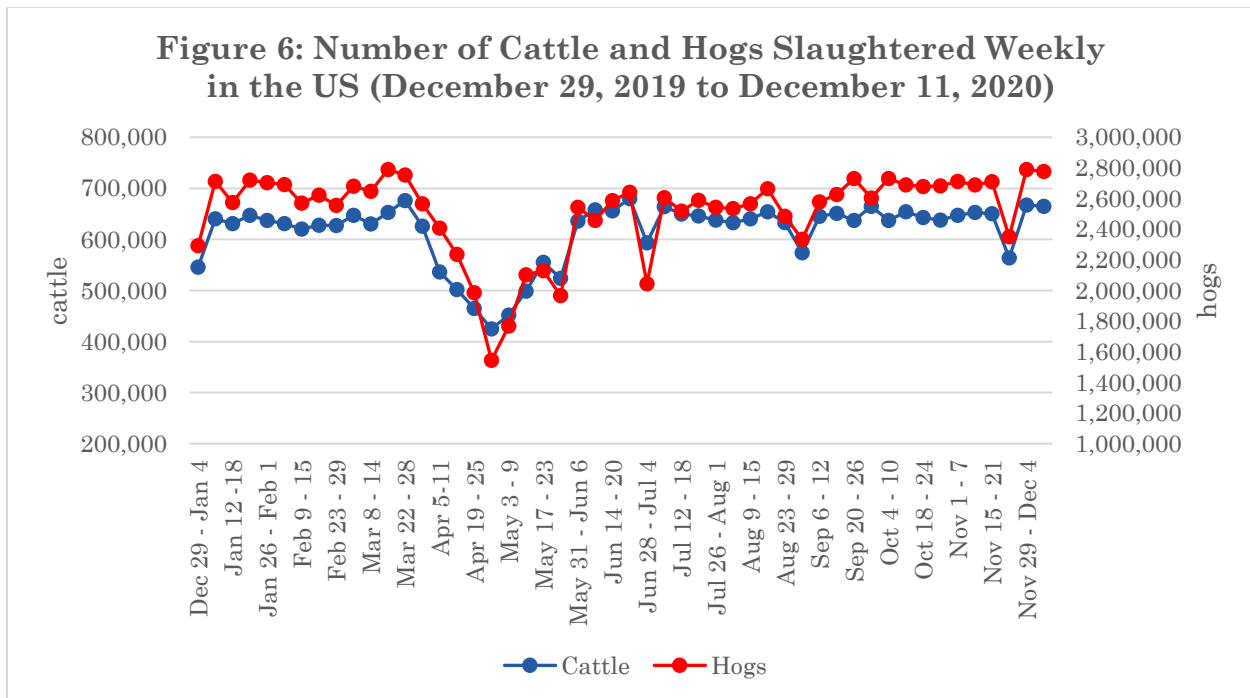


Figure 6: Number of Cattle and Hogs Slaughtered Weekly in the US (December 29, 2019 – November 7, 2020). Source: USDA AMS

The NCBA paper analyzed the losses for each sector of the beef cattle industry, cow-calf, stocker/backgrounder, and feedlot operators, with those losses estimated at \$8.1 billion, (59.7 percent of total impact); \$2.5 billion (18.2 percent), and \$3.0 billion (22.2 percent) respectively.¹⁸ In that regard, the experts distinguished the effects on the cow-calf sector, stating that, because “[C]ow-calf production is a long-term investment and impacts in the current year will extend for years into the future.”¹⁹

The paper contrasted the cow-calf impact to the effect on stockers and feedlots “where economic losses are mostly associated with turning points in markets with margins subsequently readjusting regardless of overall price level.”²⁰ NCBA’s economists estimated stocker average losses at \$159.98/head. Likewise, the estimated losses for feedlots were \$205.96/head for all cattle on feed on February 1 and expected to go to market through the third quarter of 2020.²¹

NCBA’s experts may have underestimated the losses to the beef cattle sector because this unprecedented and on-going pandemic likely has had a more significant impact than estimated in April when the NCBA/OCES analysis was prepared. Indeed, through August, the effects of the slaughter plant disruptions

¹⁸ *Id.* Estimated losses were based on information available as of April 8, 2020. The analysts estimated there would be additional economic impacts.

¹⁹ *Id.* at 2.

²⁰ *Id.*

²¹ *Id.*

were still being felt; weekly slaughter volumes had rebounded and continue to remain at normal levels, but cumulative year-to-date cattle slaughter through November remained 3.5 percent below the same period in 2019. As the NCBA paper asserts, “the timeline for market recovery from COVID-19 is unknown, and cow-calf losses could expand into 2021 when the summer and fall 2020 calf crops would be marketed.”

As with the cattle and beef industry, COVID-19 has hurt hog producers. Work commissioned by the National Pork Producers Council estimates losses for pork producers attributable to the pandemic to be approximately \$5 billion in actual and expected profits in 2020.²² According to Dr. Steve Meyer, “This is, by far, the worst financial disaster ever for American hog farmers, who were already in a weakened financial position due to two years of trade retaliation.”²³ Dr. Meyer also stated “hog farmers were finally looking at a profitable year, only to have COVID-19 turn the industry on its head. Hog farmers are now looking at \$5 billion in losses – or \$37 per hog – relative to what they expected for 2020 before the COVID-19 crisis began” and “[I]f COVID prompts additional plant disruptions – a real possibility – the number of hogs backed-up on farms will swell precipitously.”²⁴

The pessimism expressed by Dr. Meyer is echoed in an August Daily Livestock Report written by Len Steiner.²⁵ Steiner expressed concern about the supply, or oversupply according to Meyer, of hogs in the pipeline and harvest expectations in September and October.

Like the situation for cow-calf producers described in the NCBA paper, losses in the hog sector extend beyond market hogs. The impact of plant slowdowns reverberated upstream in the supply chain and devastated prices for feeder pigs in the pipeline. The weekly national weighted average price of 40-pound feeder pigs dropped 84 percent from its January high to its yearly low in July before posting a modest recovery in August and now approaching last year’s seasonal price levels as of late November. Meanwhile, cumulative year-to-date hog slaughter through November actually increased to 0.8 percent above the same period in 2019

²² <https://nppc.org/hog-farmers-urgently-need-congressional-action-to-weather-crisis/>

²³ *Id.*

²⁴ *Id.*

²⁵ *Daily Livestock Report*; August 12, 2020.

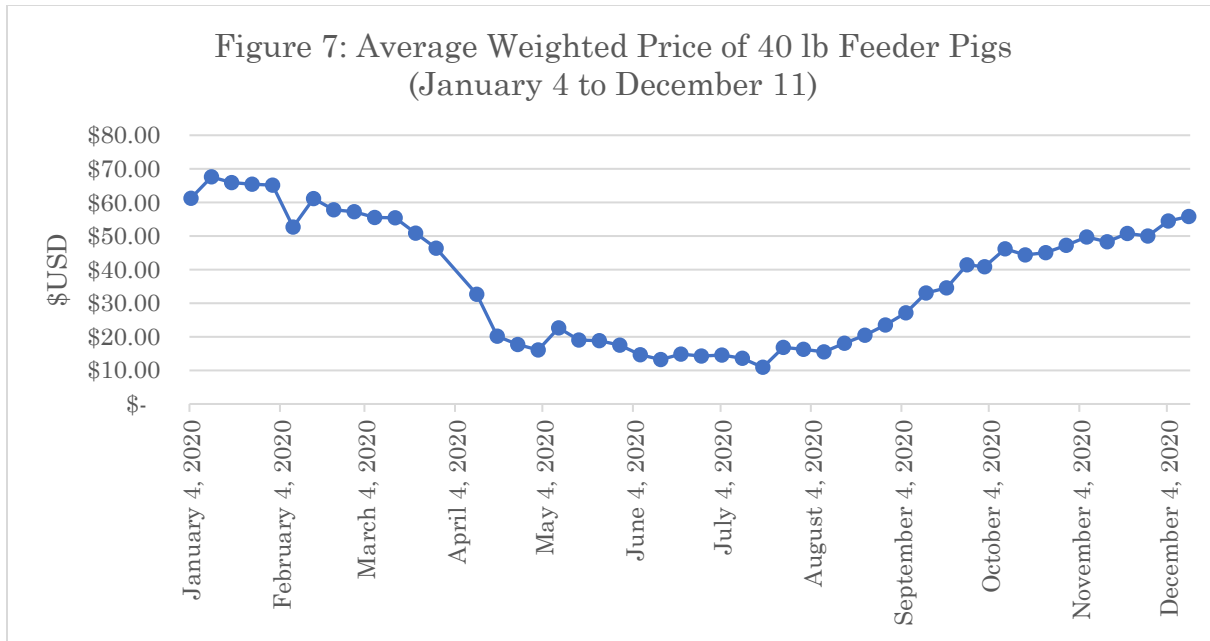


Figure 7: Average Weighted Price of 40 lb Feeder Pigs (January 4 to August 22, 2020). Source: USDA AMS

Since the COVID-19 outbreak, a group of agricultural economists, including two who prepared the NCBA analysis, helped write [*Economic Impacts of COVID-19 on Food and Agricultural Markets*](#) for The Council for Agricultural Science and Technology (CAST). The CAST report acknowledged the effect the pandemic was having on the “ability to harvest animals and produce meat.”²⁶

CAST reported that federally inspected fed cattle slaughter volumes for the week ending May 2 were 41% lower compared to the same week the year before. The result was falling cattle prices and increasing beef prices paid by consumers. The average price for live steers (65-80% Choice, fob) for April through July dropped 13 percent from the average price in the first quarter of 2020.²⁷ At the same time, the aggregate average price of all retail fresh beef increased more than 15 percent during April through July compared to the first quarter of the year. Although the increased prices paid for beef by consumers and lower prices received for live cattle have proven temporary, the CAST report highlighted what it called a “vulnerability” in meat processing, stating that “[E]ffective and efficient operation of meat packing plants is predicated on worker availability which is of utmost concern during the current crisis.”²⁸

²⁶ *Economic Impacts of COVID-19 on Food and Agricultural Markets*, The Council for Agricultural Science and Technology, p. 15

²⁷ USDA Agricultural Marketing Service LM_CT150

²⁸ *Id.* at 16.

The CAST report highlighted an important consideration: the meat processing workforce covers a “diverse set of tasks” involving “precise functions requiring training.”²⁹ The COVID-19 pandemic has caused workforce shortages in the meat packing and processing sector and CAST correctly points out

The reserve pool of potential meat packing workers is negligible, even before accounting for these absentee issues. The disruptions presented by COVID-19 to-date have been truly historic and never experienced by most involved.³⁰

Production line speeds in meat packing and processing plants are, in some respects, tied to the number of employees working the line. There is not a one-to-one correlation to slowing line speeds and the number of employees on the line. Employee absenteeism during the pandemic, however, whether because employees call in sick, were sent home with symptoms, or quarantined because of exposure to COVID-19, or simply due to apprehension as seen in some locations, caused lines in some plants to slow. Moreover, certain cuts of beef and pork require comparatively more labor to process compared to other cuts. These include boneless beef steaks and hams, which are products in high demand. Labor shortages for fabricating these cuts further exacerbates the economic impact of plant slowdowns.

Slower line speeds, or plant closures, cause a backup of the livestock supply chain. Meat packing and processing plants are not designed to house livestock for an extended period -- cattle and hog holding pens do not have the capacity to handle large volumes of animals who are not moved on to slaughter and processing. These physical limits force producers to retain, rather than market, their animals. Sometimes, producers also did not have the physical capacity to maintain livestock, requiring depopulation of some livestock. How much livestock depopulation occurred, and may still occur in some locations, may never be known but the ramifications are indisputable.

A more recent analysis done by professors Jayson Lusk, Glynn Tonsor, and Lee Schulz, [*Beef and Pork Marketing Margins and Price Spreads during COVID-19*](#), confirms the earlier analysis regarding the pandemic’s effect.³¹ The report focused on the effect the pandemic has had on prices paid to producers for cattle and the prices paid by consumers for retail beef. With the ability to look back at real data, cattle, hog, and chicken slaughter all began 2020 averaging approximately five percent greater than the same time period in 2019. The pandemic showed its effects starting in April and into May, however, and as processing plant employees stayed home or tested positive the resulting plant shutdowns and slower line speeds

²⁹ *Id.*

³⁰ *Id.*

³¹ *Beef and Pork Marketing Margins and Price Spreads during COVID-19*, Lusk, Tonsor, Shultz, August 12, 2020

dramatically reduced processing capacity and thus the demand for cattle and hogs. By April live cattle prices had dropped by more than \$20 per hundredweight.

Lusk, *et al* found for the eight weeks following April 5, federally inspected “cattle slaughter averaged 22% lower than the same period in 2019, a decrease of over 1.14 million head, which is nearly two weeks of typical cattle slaughter for that time of the year.”³² The report also identified a more significant problem with fed cattle slaughter capabilities than total cattle slaughter, finding for “the week ending May 2nd, FI [federally inspected] steer and heifer volumes were 41% lower compared to the same week in 2019.”³³

Lusk, *et al* straightforwardly explain how wholesale meat prices increase when livestock prices fall.

When a packing plant temporarily ceases operations, for instance due to fire or worker illnesses, packers’ demand for cattle or hogs falls. That is, a plant closure results in an excess supply of livestock relative to the ability of packers to process them. Plant closures cause a reduction in demand for fed cattle and hogs. As a result, livestock prices fall. At the same time, a plant closure means fewer cattle and hogs getting turned into burgers and bacon. A plant closure results in less meat on the market. That is, there is a reduction in meat supply. Grocers, restaurants, and exporters are left vying for a smaller temporary supply of meat, which results in meat prices being bid up. The combined effect of rising wholesale meat prices and falling livestock prices results in an increasing price spread.³⁴

Lusk, *et al* also acknowledge the costs to packers associated with operating at lower capacity due to social distancing and other factors. They cite the cost increases associated with idling plants, reducing through-put, refrigerating empty buildings, paying sick employees not at work, paying overtime, installing partitions, reconfiguring communal areas, *etc.* Such costs have been publicly documented for some companies. The study also recognizes what the authors have called “broader societal considerations;” not just those related to worker safety “but also food availability for consumers.”³⁵

Almost universally, economists agree that the difficulties the livestock industry endured in the spring has had an economic and financial bow-wave effect that has continued to be felt through the rest of 2020 and likely into 2021.

³² *Id.* at 5.

³³ *Id.* at 6.

³⁴ *Id.* at 14

³⁵ *Id.* at 28.

Communities

The pandemic has hurt not only livestock producers but the communities in which they live and the communities with meat packing facilities. Although the impact of COVID-19 was devastating to many sectors of the economy, the meat packing and processing industry is a powerful economic engine in the communities and states in which it is located. According to the Bureau of Economic Analysis' Regional Industrial Multiplier System (RIMS II), each dollar in output from livestock slaughter and processing has a statewide economic multiplier effect of between \$1.90 to \$2.50 in the key states in which it is located.³⁶

During the spring the National Pork Board commissioned the economic research and analysis firm Decision Innovation Solutions to conduct a study of the weekly economic losses in five communities associated with plant closings.³⁷ In each location the weekly loss to the community was tens of millions of dollars. In each of these five case studies, the packing plant continued to pay employees, which lessened the overall adverse economic impact.

As the analysis notes, the decision to continue to pay employees benefitted other local businesses during the worst of the COVID-19 pandemic and continued to generate state and local tax revenue, but idling the plants' operations nonetheless had indirect consequences, such as losing purchases of equipment, sanitation supplies, packaging materials, and professional services, not to mention livestock. Further, that loss of economic activity results in a loss of induced economic benefits, which come from those suppliers and vendors and farmers' business and economic activities.

Conclusions

The pandemic's spread was unprecedented and placed the meat and livestock industry under great strain. Throughout the past six months, the North American meat industry has implemented important protocols and procedures to protect its workforce from the threats posed by the pandemic. These efforts have yielded considerable success, as evidenced by the data on new positive cases within the industry.

The industry's efforts are guided by adherence to three key tenets: the urgency of protecting the health and safety of its workforce; the need to cooperate with farmers and ranchers to navigate the economic fallout from the disruptions caused by this pandemic; and ensuring meat packing and processing plants, a vital part of the nation's critical infrastructure, continue to operate to provide a safe and secure supply of high-quality, nutritious protein to the U.S. and the world.

³⁶ RIMS II Multiplier for animal (except poultry) slaughter, processing and rendering; IN, IA, MN, CO, NE, SD, TX, WI.

³⁷ See Attachment A

Given the scope of the COVID-19 pandemic, the industry has proven resilient. There have been only a limited number of COVID-19 cases in meat packing and processing plants over the past several months, even as the number of cases nationally surged beyond those seen in the spring. Livestock slaughter and meat production resumed to more normal levels, averting what could have been a much worse situation that would have ground the U.S. agricultural economy to a halt, devastating rural economies. The continued operation of packing and processing plants, which is a powerful economic engine in normal times, has been even more critical to the communities where they are located. Finally, although there were short term disruptions to the food supply chain, consumers still found meat and poultry on the grocery store shelf.

A sufficient understanding of the virus, among authorities in government, experts in the industry and academia was lacking in the early stages to prevent its spread. Early advice from the CDC and the Surgeon General was not consistent; moreover, PPE was not readily available in the initial stages of the outbreak. Considerable time was required to implement necessary controls and protocols. Indeed, CDC did not issue guidance until April 26, 41 days after COVID-19 was declared a national emergency.

Although the learning curve was steep, since the pandemic's inception meat and poultry companies have worked with federal authorities and state and local health officials to exchange information and implement effective practices and procedures to best protect workers. As the "second wave" of new cases has hit the nation, it is important to consider all the factors in play, including the plethora of programs and procedures meat processors successfully implemented to enhance worker safety in the red meat and poultry industry.

The December 2020 realities of worker safety in meat packing and processing plants is quite different than the perceptions regarding worker safety based on April 2020 conditions. Given the immediate and likely lasting impact on the nation's livestock producers it is also critically important to recognize the dire economic consequences of capricious decision-making to close plants.

ATTACHMENT A

ECONOMIC LOSSES

FROM SUSPENDING PORK PROCESSING AT THE DELPHI, INDIANA PLANT

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE STILL PAYING EMPLOYEES AT THE COMBINED SLAUGHTER AND PROCESSING PORK PLANT IN DELPHI, INDIANA: Suspending production at the combined slaughter and processing pork plant in Delphi, Indiana (Carroll County) while employees continue to be paid would generate the following estimated weekly net economic impact. The Carroll County combined slaughter and processing pork plant was assumed to operate 5.4 days per week and have a capacity to slaughter 93,420 head of pigs per week¹. The plant directly supports 2,500 jobs. Carroll County was estimated to have a population of over 20,000² according to the U.S. Census Bureau in 2019. For further details on the assumptions used to get results, please see background on the next page.

WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES



WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION AND PAYING EMPLOYEES³

| Impact Type | Jobs | Labor Income | Value-Added | Sales |
|---------------------|----------------|------------------|------------------|-------------------|
| Direct Effect | 0 | (\$0.0 M) | (\$1.7 M) | (\$32.0 M) |
| Indirect Effect | (1,576) | (\$1.5 M) | (\$2.7 M) | (\$5.9 M) |
| Induced Effect | (134) | (\$0.1 M) | (\$0.2 M) | (\$0.3 M) |
| Total Effect | (1,710) | (\$1.5 M) | (\$4.6 M) | (\$38.2 M) |

WEEKLY STATE & LOCAL TAXES PAID

| Event | Taxes |
|----------------------------|--------------------|
| Suspending Production | (\$520,858) |
| Paying Employees | \$40,733 |
| Net of Both Effects | (\$480,125) |

WEEKLY FEDERAL TAXES PAID

| Event | Taxes |
|----------------------------|--------------------|
| Suspending Production | (\$905,452) |
| Paying Employees | \$371,080 |
| Net of Both Effects | (\$534,372) |

WEEKLY TAXES PAID (NET EFFECT)

| Jurisdiction | Taxes |
|-----------------|----------------------|
| State and Local | (\$480,125) |
| Federal | (\$534,372) |
| Total | (\$1,014,497) |

¹<https://www.pork.org/facts/stats/us-porking-sector/>

²<https://www.census.gov/quickfacts/carrollcountyindiana>

³Totals may not sum due to rounding

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION AT THE PORK SLAUGHTER PROCESSING PLANT IN DELPHI, INDIANA: As the plant does continues to sit idle a series of economic activities that typically take place in Carroll County also stop. This weekly impact shows the effect of the Delphi, Indiana combined slaughter and processing pork plant no longer existing in Carroll County.

| WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION | | | | | WEEKLY TAXES LOST FROM SUSPENDING PRODUCTION | |
|---|----------------|------------------|------------------|-------------------|--|---------------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | (2,500) | (\$2.9 M) | (\$4.6 M) | (\$34.9 M) | State and Local | (\$520,858) |
| Indirect Effect | (1,576) | (\$1.5 M) | (\$2.7 M) | (\$5.9 M) | Federal | (\$905,452) |
| Induced Effect | (333) | (\$0.2 M) | (\$0.4 M) | (\$0.8 M) | Total | (\$1,426,310) |
| Total Effect | (4,409) | (\$4.5 M) | (\$7.8 M) | (\$41.6 M) | | |

WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES AT THE PORK SLAUGHTER PROCESSING PLANT IN DELPHI, INDIANA: The plant has continued to pay employees even though production has stopped, generating a positive economic impact. In addition to the 2,500 positions that have a direct effect from being paid there also is an induced effect that happens as those employees spend their wages in the community on food, entertainment and other activities.

| WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES | | | | | WEEKLY TAXES PAID FROM CONTINUING TO PAY EMPLOYEES | |
|---|--------------|----------------|----------------|----------------|--|-----------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | 2,500 | \$2.9 M | \$2.9 M | \$2.9 M | State and Local | \$40,733 |
| Indirect Effect | 0 | \$0.0 M | \$0.0 M | \$0.0 M | Federal | \$371,080 |
| Induced Effect | 199 | \$0.1 M | \$0.3 M | \$0.5 M | Total | \$411,813 |
| Total Effect | 2,699 | \$3.0 M | \$3.1 M | \$3.4 M | | |

BACKGROUND: A combined slaughter and processing pork plant causes a measurable increase in economic activity within Carroll County, Indiana through the operations of the plant. Common measures of economic activity are: Employment (jobs), Labor Income, Value-Added and Output (sales). When a meat processing plant that also slaughters suspends production, but still pays employees, this causes a series of economic activities (impacts) to stop. For this summary, the net economic impact was broken into two events: suspending production (weekly impact) and paying employees of the plant (weekly impact). The magnitude of these economic activities is largely related to the presence of industries which supply the needed inputs for a packing plant.

To arrive at the net effect of suspending production while still paying employees at the pork slaughter processing plant in Delphi, Indiana, we used the following basic assumptions: 1) Suspending production assumes a negative impact, but as the plant continues to pay employees this would soften some of the impact from suspending production; 2) Only employee compensation was included in the impact of paying employees while proprietors income was excluded; 3) Labor income, value-added, and sales impacts are shown on a per week basis (52 weeks per year); 4) Employment impacts shown are one-time impacts and are not additive for each week the plant is closed; 5) All dollars are reported in 2020 dollars.

The operations of a pork processing plant that slaughters require purchases of pigs, equipment, chemicals, professional services and purchases of many other inputs to produce pork for sale. The direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used by the pork processing plant then must purchase inputs to support the pork processing plant operations; these are known as *indirect effects*. Those who work in the pork processing plant and for the suppliers and vendors then use their additional income to make household purchases; these are known as *household or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as total effects and accounts for the total multiplier effect present from the operations of the pork processing plant.

ADDITIONAL DETAILS on methodology may be obtained through communication with the study's author, Decision Innovation Solutions (info@decision-innovation.com)

ECONOMIC LOSSES

FROM SUSPENDING PORK PROCESSING AT THE LOGANSPORT, INDIANA PLANT

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE STILL PAYING EMPLOYEES AT THE COMBINED SLAUGHTER AND PROCESSING PORK PLANT IN LOGANSPORT, INDIANA: Suspending production at the combined slaughter and processing pork plant in Logansport, Indiana (Cass County) while employees continue to be paid would generate the following estimated weekly net economic impact. The Cass County combined slaughter and processing pork plant was assumed to operate 5.4 days per week and have a capacity to slaughter 83,160 head of pigs per week¹. The plant directly supports 2,200 jobs. Cass County was estimated to have a population of nearly 38,000² according to the U.S. Census Bureau in 2019. For further details on the assumptions used to get results, please see background on the next page.

WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES



WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION AND PAYING EMPLOYEES³

| Impact Type | Jobs | Labor Income | Value-Added | Sales |
|---------------------|----------------|------------------|------------------|-------------------|
| Direct Effect | 0 | (\$0.0 M) | (\$1.4 M) | (\$28.1 M) |
| Indirect Effect | (890) | (\$0.9 M) | (\$1.3 M) | (\$2.8 M) |
| Induced Effect | (126) | (\$0.1 M) | (\$0.2 M) | (\$0.3 M) |
| Total Effect | (1,016) | (\$1.0 M) | (\$2.9 M) | (\$31.2 M) |

| WEEKLY STATE & LOCAL TAXES PAID | |
|---------------------------------|--------------------|
| Event | Taxes |
| Suspending Production | (\$387,742) |
| Paying Employees | \$48,502 |
| Net of Both Effects | (\$339,240) |

| WEEKLY FEDERAL TAXES PAID | |
|----------------------------|--------------------|
| Event | Taxes |
| Suspending Production | (\$692,215) |
| Paying Employees | \$304,764 |
| Net of Both Effects | (\$387,452) |

| WEEKLY TAXES PAID (NET EFFECT) | |
|--------------------------------|--------------------|
| Jurisdiction | Taxes |
| State and Local | (\$339,240) |
| Federal | (\$387,452) |
| Total | (\$726,692) |

¹<https://www.pork.org/facts/states/us-packing-sector/>

²<https://www.census.gov/quickfacts/casscountyindiana>

³Totals may not sum due to rounding

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION AT THE PORK SLAUGHTER PROCESSING PLANT IN LOGANSFORT, INDIANA: As the plant does continues to sit idle a series of economic activities that typically take place in Cass County also stop. This weekly impact shows the effect of the Logansport, Indiana combined slaughter and processing pork plant no longer existing in Cass County.

| WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION | | | | | WEEKLY TAXES LOST FROM SUSPENDING PRODUCTION | |
|---|----------------|------------------|------------------|-------------------|--|---------------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | (2,200) | (\$2.3 M) | (\$3.7 M) | (\$30.3 M) | State and Local | (\$387,742) |
| Indirect Effect | (890) | (\$0.9 M) | (\$1.3 M) | (\$2.8 M) | Federal | (\$692,215) |
| Induced Effect | (429) | (\$0.2 M) | (\$0.5 M) | (\$0.9 M) | Total | (\$1,079,957) |
| Total Effect | (3,519) | (\$3.4 M) | (\$5.5 M) | (\$34.1 M) | | |

WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES AT THE PORK SLAUGHTER PROCESSING PLANT IN LOGANSFORT, INDIANA: The plant has continued to pay employees even though production has stopped, generating a positive economic impact. In addition to the 2,200 positions that have a direct effect from being paid there also is an induced effect that happens as those employees spend their wages in the community on food, entertainment and other activities.

| WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES | | | | | WEEKLY TAXES PAID FROM CONTINUING TO PAY EMPLOYEES | |
|---|--------------|----------------|----------------|----------------|--|-----------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | 2,200 | \$2.3 M | \$2.3 M | \$2.3 M | State and Local | \$48,502 |
| Indirect Effect | 0 | \$0.0 M | \$0.0 M | \$0.0 M | Federal | \$304,764 |
| Induced Effect | 304 | \$0.2 M | \$0.4 M | \$0.7 M | Total | \$353,266 |
| Total Effect | 2,504 | \$2.5 M | \$2.7 M | \$2.9 M | | |

BACKGROUND: A combined slaughter and processing pork plant causes a measurable increase in economic activity within Cass County, Indiana through the operations of the plant. Common measures of economic activity are: Employment (jobs), Labor Income, Value-Added and Output (sales). When a meat processing plant that also slaughters suspends production, but still pays employees, this causes a series of economic activities (impacts) to stop. For this summary, the net economic impact was broken into two events: suspending production (weekly impact) and paying employees of the plant (weekly impact). The magnitude of these economic activities is largely related to the presence of industries which supply the needed inputs for a packing plant.

To arrive at the net effect of suspending production while still paying employees at the pork slaughter processing plant in Logansport, Indiana, we used the following basic assumptions: 1) Suspending production assumes a negative impact, but as the plant continues to pay employees this would soften some of the impact from suspending production; 2) Only employee compensation was included in the impact of paying employees while proprietors income was excluded; 3) Labor income, value-added, and sales impacts are shown on a per week basis (52 weeks per year); 4) Employment impacts shown are one-time impacts and are not additive for each week the plant is closed; 5) All dollars are reported in 2020 dollars.

The operations of a pork processing plant that slaughters require purchases of pigs, equipment, chemicals, professional services and purchases of many other inputs to produce pork for sale. The direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used by the pork processing plant then must purchase inputs to support the pork processing plant operations; these are known as *indirect effects*. Those who work in the pork processing plant and for the suppliers and vendors then use their additional income to make household purchases; these are known as *household or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as total effects and accounts for the total multiplier effect present from the operations of the pork processing plant.

ADDITIONAL DETAILS on methodology may be obtained through communication with the study's author, Decision Innovation Solutions (info@decision-innovation.com)

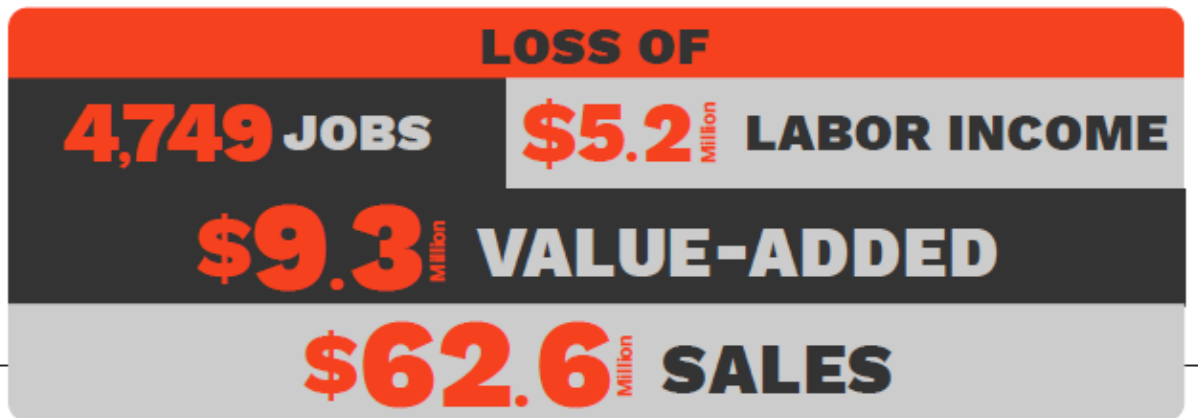
ECONOMIC LOSSES

FROM SUSPENDING PORK PROCESSING AT THE SIOUX FALLS, SOUTH DAKOTA PLANT

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE STILL PAYING EMPLOYEES AT THE COMBINED SLAUGHTER AND PROCESSING PORK PLANT IN SIOUX FALLS, SOUTH DAKOTA:

Suspending production at the combined slaughter and processing pork plant in Sioux Falls, South Dakota (Minnehaha County) while employees continue to be paid would generate the following estimated weekly net economic impact. The Minnehaha County combined slaughter and processing pork plant was assumed to operate 5.4 days per week and have a capacity to slaughter 105,300 head of pigs per week¹. The plant directly supports 3,700 jobs. Minnehaha County was estimated to have a population of over 193,000² according to the U.S. Census Bureau in 2019. For further details on the assumptions used to get results, please see background on the next page.

WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES



WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES³

| Impact Type | Jobs | Labor Income | Value-Added | Sales |
|---------------------|----------------|------------------|------------------|-------------------|
| Direct Effect | 0 | \$0.0 M | (\$1.7 M) | (\$46.5 M) |
| Indirect Effect | (4,393) | (\$4.9 M) | (\$7.0 M) | (\$15.0 M) |
| Induced Effect | (356) | (\$0.4 M) | (\$0.6 M) | (\$1.0 M) |
| Total Effect | (4,749) | (\$5.2 M) | (\$9.3 M) | (\$62.6 M) |

| WEEKLY STATE & LOCAL TAXES PAID | |
|---------------------------------|--------------------|
| Event | Taxes |
| Suspending Production | (\$885,471) |
| Paying Employees | \$96,161 |
| Net of Both Effects | (\$789,310) |

| WEEKLY FEDERAL TAXES PAID | |
|----------------------------|----------------------|
| Event | Taxes |
| Suspending Production | (\$2,131,244) |
| Paying Employees | \$724,956 |
| Net of Both Effects | (\$1,406,287) |

| WEEKLY TAXES PAID (NET EFFECT) | |
|--------------------------------|----------------------|
| Jurisdiction | Taxes |
| State and Local | (\$789,310) |
| Federal | (\$1,406,287) |
| Total | (\$2,195,597) |

¹ <https://www.pork.org/facts/stats/us-porking-sector/>

² <https://www.census.gov/quickfacts/minnehahacountysouthdakota>

³Totals may not sum due to rounding

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION AT THE PORK SLAUGHTER AND PROCESSING PLANT IN SIOUX FALLS, SOUTH DAKOTA: As the plant continues to sit idle, a series of economic activities that typically take place in Minnehaha County also stop. This weekly impact shows the effect of the Sioux Falls, South Dakota combined slaughter and processing pork plant no longer existing in Minnehaha County.

| WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION | | | | | WEEKLY TAXES PAID FROM SUSPENDING PRODUCTION | |
|---|----------------|-------------------|-------------------|-------------------|--|---------------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | (3,700) | (\$5.1 M) | (\$6.8 M) | (\$51.6 M) | State and Local | (\$885,471) |
| Indirect Effect | (4,393) | (\$4.9 M) | (\$7.0 M) | (\$15.0 M) | Federal | (\$2,131,244) |
| Induced Effect | (1,185) | (\$1.2 M) | (\$2.0 M) | (\$3.5 M) | Total | (\$3,016,714) |
| Total Effect | (9,278) | (\$11.1 M) | (\$15.7 M) | (\$70.1 M) | | |

WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES AT THE PORK SLAUGHTER AND PROCESSING PLANT IN SIOUX FALLS, SOUTH DAKOTA: The plant has continued to pay employees even though production has stopped, generating a positive economic impact. In addition to the 3,700 positions that have a direct effect from being paid there also is an induced effect that happens as those employees spend their wages in the community on food, entertainment and other activities.

| WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES | | | | | WEEKLY TAXES PAID FROM CONTINUING TO PAY EMPLOYEES | |
|---|--------------|----------------|----------------|----------------|--|-----------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | 3,700 | \$5.1 M | \$5.1 M | \$5.1 M | State and Local | \$96,161 |
| Indirect Effect | 0 | \$0.0 M | \$0.0 M | \$0.0 M | Federal | \$724,956 |
| Induced Effect | 829 | \$0.8 M | \$1.4 M | \$2.4 M | Total | \$821,117 |
| Total Effect | 4,529 | \$5.9 M | \$6.4 M | \$7.5 M | | |

BACKGROUND: A combined slaughter and processing pork plant causes a measurable increase in economic activity within Minnehaha County, South Dakota through the operations of the plant. Common measures of economic activity are: Employment (jobs), Labor Income, Value-Added and Output (sales). When a meat processing plant that also slaughters suspends production, but still pays employees, this causes a series of economic activities (impacts) to stop. For this summary, the net economic impact was broken into two events: suspending production (weekly impact) and paying employees of the plant (weekly impact). The magnitude of these economic activities is largely related to the presence of industries which supply the needed inputs for a packing plant.

To arrive at the net effect of suspending production while still paying employees at the pork slaughter processing plant in Sioux Falls, South Dakota, we used the following basic assumptions: 1) Suspending production assumes a negative impact, but as the plant continues to pay employees this would soften some of the impact from suspending production; 2) Only employee compensation was included in the impact of paying employees while proprietors income was excluded; 3) Labor income, value-added, and sales impacts are shown on a per week basis (52 weeks per year); 4) Employment impacts shown are one-time impacts and are not additive for each week the plant is closed; 5) All dollars are reported in 2020 dollars.

The operations of a pork processing plant that slaughters require purchases of pigs, equipment, chemicals, professional services and purchases of many other inputs to produce pork for sale. The direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used by the pork processing plant then must purchase inputs to support the pork processing plant operations; these are known as *indirect effects*. Those who work in the pork processing plant and for the suppliers and vendors then use their additional income to make household purchases; these are known as *household or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as total effects and accounts for the total multiplier effect present from the operations of the pork processing plant.

ADDITIONAL DETAILS on methodology may be obtained through communication with the study's author, Decision Innovation Solutions (info@decision-innovation.com)

ECONOMIC LOSSES

FROM SUSPENDING PORK PROCESSING AT THE WORTHINGTON, MINNESOTA PLANT

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE STILL PAYING EMPLOYEES AT THE COMBINED SLAUGHTER AND PROCESSING PORK PLANT IN WORTHINGTON, MINNESOTA:

Suspending production at the combined slaughter and processing pork plant in Worthington, Minnesota (Nobles County) while employees continue to be paid would generate the following estimated weekly net economic impact. The Nobles County combined slaughter and processing pork plant was assumed to operate 5.4 days per week and have a capacity to slaughter 113,400 head of pigs per week¹. The plant directly supports 2,000 jobs. Nobles County was estimated to have a population of nearly 22,000² according to the U.S. Census Bureau in 2019. For further details on the assumptions used to get results, please see background on the next page.

WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES



WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION AND PAYING EMPLOYEES³

| Impact Type | Jobs | Labor Income | Value-Added | Sales |
|---------------------|----------------|------------------|------------------|-------------------|
| Direct Effect | 0 | (\$0.0 M) | (\$1.0 M) | (\$25.2 M) |
| Indirect Effect | (2,225) | (\$1.9 M) | (\$3.3 M) | (\$9.4 M) |
| Induced Effect | (284) | (\$0.2 M) | (\$0.4 M) | (\$0.7 M) |
| Total Effect | (2,509) | (\$2.1 M) | (\$4.7 M) | (\$35.3 M) |

| WEEKLY STATE & LOCAL TAXES PAID | | WEEKLY FEDERAL TAXES PAID | | WEEKLY TAXES PAID (NET EFFECT) | |
|---------------------------------|--------------------|----------------------------|--------------------|--------------------------------|----------------------|
| Event | Taxes | Event | Taxes | Jurisdiction | Taxes |
| Suspending Production | (\$593,958) | Suspending Production | (\$968,657) | State and Local | (\$520,621) |
| Paying Employees | \$73,337 | Paying Employees | \$318,728 | Federal | (\$649,929) |
| Net of Both Effects | (\$520,621) | Net of Both Effects | (\$649,929) | Total | (\$1,170,550) |

¹<https://www.pork.org/facts/stats/u-s-porking-sector/>

²<https://www.census.gov/quickfacts/noblescountyminnesota>

³Totals may not sum due to rounding

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION AT THE PORK SLAUGHTER PROCESSING PLANT IN WORTHINGTON, MINNESOTA: As the plant does continues to sit idle a series of economic activities that typically take place in Nobles County also stop. This weekly impact shows the effect of the Worthington, Minnesota combined slaughter and processing pork plant no longer existing in Nobles County.

| WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION | | | | | WEEKLY TAXES LOST FROM SUSPENDING PRODUCTION | |
|---|----------------|------------------|------------------|-------------------|--|---------------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | (2,000) | (\$2.6 M) | (\$3.6 M) | (\$27.8 M) | State and Local | (\$593,958) |
| Indirect Effect | (2,225) | (\$1.9 M) | (\$3.3 M) | (\$9.4 M) | Federal | (\$968,657) |
| Induced Effect | (642) | (\$0.5 M) | (\$0.8 M) | (\$1.6 M) | Total | (\$1,562,615) |
| Total Effect | (4,867) | (\$4.9 M) | (\$7.8 M) | (\$38.7 M) | | |

WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES AT THE PORK SLAUGHTER PROCESSING PLANT IN WORTHINGTON, MINNESOTA: The plant has continued to pay employees even though production has stopped, generating a positive economic impact. In addition to the 2,000 positions that have a direct effect from being paid there also is an induced effect that happens as those employees spend their wages in the community on food, entertainment and other activities.

| WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES | | | | | WEEKLY TAXES PAID FROM CONTINUING TO PAY EMPLOYEES | |
|---|--------------|----------------|----------------|----------------|--|-----------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | 2,000 | \$2.6 M | \$2.6 M | \$2.6 M | State and Local | \$73,337 |
| Indirect Effect | 0 | \$0.0 M | \$0.0 M | \$0.0 M | Federal | \$318,728 |
| Induced Effect | 358 | \$0.3 M | \$0.5 M | \$0.9 M | Total | \$392,065 |
| Total Effect | 2,358 | \$2.9 M | \$3.1 M | \$3.5 M | | |

BACKGROUND: A combined slaughter and processing pork plant causes a measurable increase in economic activity within Nobles County, Minnesota through the operations of the plant. Common measures of economic activity are: Employment (jobs), Labor Income, Value-Added and Output (sales). When a meat processing plant that also slaughters suspends production, but still pays employees, this causes a series of economic activities (impacts) to stop. For this summary, the net economic impact was broken into two events: suspending production (weekly impact) and paying employees of the plant (weekly impact). The magnitude of these economic activities is largely related to the presence of industries which supply the needed inputs for a packing plant.

To arrive at the net effect of suspending production while still paying employees at the pork slaughter processing plant in Worthington, Minnesota, we used the following basic assumptions: 1) Suspending production assumes a negative impact, but as the plant continues to pay employees this would soften some of the impact from suspending production; 2) Only employee compensation was included in the impact of paying employees while proprietors income was excluded; 3) Labor income, value-added, and sales impacts are shown on a per week basis (52 weeks per year); 4) Employment impacts shown are one-time impacts and are not additive for each week the plant is closed; 5) All dollars are reported in 2020 dollars.

The operations of a pork processing plant that slaughters require purchases of pigs, equipment, chemicals, professional services and purchases of many other inputs to produce pork for sale. The direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used by the pork processing plant then must purchase inputs to support the pork processing plant operations; these are known as *indirect effects*. Those who work in the pork processing plant and for the suppliers and vendors then use their additional income to make household purchases; these are known as *household or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as total effects and accounts for the total multiplier effect present from the operations of the pork processing plant.

ADDITIONAL DETAILS on methodology may be obtained through communication with the study's author, Decision Innovation Solutions (info@decision-innovation.com)

ECONOMIC LOSSES

FROM SUSPENDING PORK PROCESSING AT THE WATERLOO, IOWA PLANT

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE STILL PAYING EMPLOYEES AT THE COMBINED SLAUGHTER AND PROCESSING PORK PLANT IN WATERLOO, IOWA: Suspending production at the combined slaughter and processing pork plant in Waterloo, Iowa (Black Hawk County) while employees continue to be paid would generate the following estimated weekly net economic impact. The Black Hawk County combined slaughter and processing pork plant was assumed to operate 5.4 days per week and have a capacity to slaughter 105,300 head of pigs per week¹. The plant directly supports 2,800 jobs. Black Hawk County was estimated to have a population of over 131,000² according to the U.S. Census Bureau in 2019. For further details on the assumptions used to get results, please see background on the next page.

WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION WHILE PAYING EMPLOYEES



WEEKLY NET ECONOMIC IMPACT OF SUSPENDING PRODUCTION AND PAYING EMPLOYEES³

| Impact Type | Jobs | Labor Income | Value-Added | Sales |
|---------------------|----------------|------------------|------------------|-------------------|
| Direct Effect | 0 | (\$0.0 M) | (\$1.7 M) | (\$35.6 M) |
| Indirect Effect | (2,444) | (\$2.4 M) | (\$3.8 M) | (\$8.6 M) |
| Induced Effect | (510) | (\$0.4 M) | (\$0.7 M) | (\$1.3 M) |
| Total Effect | (2,954) | (\$2.8 M) | (\$6.1 M) | (\$45.5 M) |

| WEEKLY STATE & LOCAL TAXES PAID | | WEEKLY FEDERAL TAXES PAID | | WEEKLY TAXES PAID (NET EFFECT) | |
|---------------------------------|--------------------|----------------------------|--------------------|--------------------------------|----------------------|
| Event | Taxes | Event | Taxes | Jurisdiction | Taxes |
| Suspending Production | (\$782,663) | Suspending Production | (\$1,197,221) | State and Local | (\$686,851) |
| Paying Employees | \$95,812 | Paying Employees | \$441,846 | Federal | (\$755,374) |
| Net of Both Effects | (\$686,851) | Net of Both Effects | (\$755,374) | Total | (\$1,442,225) |

¹<https://www.pork.org/facts/stats/u-s-porking-sector/>

²www.census.gov/quickfacts/blackhawkiowa

³Totals may not sum due to rounding

WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION AT THE PORK SLAUGHTER PROCESSING PLANT IN WATERLOO, IOWA: As the plant continues to sit idle a series of economic activities that typically take place in Black Hawk County also stop. This weekly impact shows the effect of the Waterloo, Iowa combined slaughter and processing pork plant no longer existing in Black Hawk County.

| WEEKLY ECONOMIC IMPACT OF SUSPENDING PRODUCTION | | | | | WEEKLY TAXES LOST FROM SUSPENDING PRODUCTION | |
|---|----------------|------------------|-------------------|-------------------|--|---------------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | (2,800) | (\$3.2 M) | (\$4.9 M) | (\$38.8 M) | State and Local | (\$782,663) |
| Indirect Effect | (2,444) | (\$2.4 M) | (\$3.8 M) | (\$8.6 M) | Federal | (\$1,197,221) |
| Induced Effect | (1,163) | (\$1.0 M) | (\$1.6 M) | (\$2.9 M) | Total | (\$1,979,883) |
| Total Effect | (6,407) | (\$6.6 M) | (\$10.2 M) | (\$50.3 M) | | |

WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES AT THE PORK SLAUGHTER PROCESSING PLANT IN WATERLOO, IOWA: The plant has continued to pay employees even though production has stopped, generating a positive economic impact. In addition to the 2,800 positions that have a direct effect from being paid there also is an induced effect that happens as those employees spend their wages in the community on food, entertainment and other activities.

| WEEKLY ECONOMIC IMPACT OF CONTINUING TO PAY EMPLOYEES | | | | | WEEKLY TAXES PAID FROM CONTINUING TO PAY EMPLOYEES | |
|---|--------------|----------------|----------------|----------------|--|-----------|
| Impact Type | Jobs | Labor Income | Value-Added | Sales | Jurisdiction | Taxes |
| Direct Effect | 2,800 | \$3.2 M | \$3.2 M | \$3.2 M | State and Local | \$95,812 |
| Indirect Effect | 0 | \$0 | \$0 | \$0 | Federal | \$441,846 |
| Induced Effect | 653 | \$0.5 M | \$0.9 M | \$1.7 M | Total | \$537,658 |
| Total Effect | 3,453 | \$3.7 M | \$4.1 M | \$4.8 M | | |

BACKGROUND: A combined slaughter and processing pork plant causes a measurable increase in economic activity within Black Hawk County, Iowa through the operations of the plant. Common measures of economic activity are: Employment (jobs), Labor Income, Value-Added and Output (sales). When a meat processing plant that also slaughters suspends production, but still pays employees, this causes a series of economic activities (impacts) to stop. For this summary, the net economic impact was broken into two events: suspending production (weekly impact) and paying employees of the plant (weekly impact). The magnitude of these economic activities is largely related to the presence of industries which supply the needed inputs for a packing plant.

To arrive at the net effect of suspending production while still paying employees at the pork slaughter processing plant in Waterloo, Iowa, we used the following basic assumptions: 1) Suspending production assumes a negative impact, but as the plant continues to pay employees this would soften some of the impact from suspending production; 2) Only employee compensation was included in the impact of paying employees while proprietors income was excluded; 3) Labor income, value-added, and sales impacts are shown on a per week basis (52 weeks per year); 4) Employment impacts shown are one-time impacts and are not additive for each week the plant is closed; 5) All dollars are reported in 2020 dollars.

The operations of a pork processing plant that slaughters require purchases of pigs, equipment, chemicals, professional services and purchases of many other inputs to produce pork for sale. The direct purchase of supplies and equipment are known as *direct effects*. The suppliers and vendors used by the pork processing plant then must purchase inputs to support the pork processing plant operations; these are known as *indirect effects*. Those who work in the pork processing plant and for the suppliers and vendors then use their additional income to make household purchases; these are known as *household or induced effects*. Taken together, the sum of direct, indirect and induced effects are known as total effects and accounts for the total multiplier effect present from the operations of the pork processing plant.

ADDITIONAL DETAILS on methodology may be obtained through communication with the study's author, Decision Innovation Solutions (info@decision-innovation.com)