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Version

**IN THE UNITED STATES DISTRICT COURT
DISTRICT OF MINNESOTA**

IN RE CATTLE AND BEEF ANTITRUST
LITIGATION

Case No. 0:20-cv-01319 (JRT/HB)

This Document Relates To:

CONSUMER INDIRECT PURCHASER
PLAINTIFF ACTION

**EXPERT REPORT
of
Russell W. Mangum III, Ph.D.
Regarding Class Certification**

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I. INTRODUCTION

I.A. My Education, Experience, and Qualifications

1. I am the Executive Vice President at Cirque Analytics. Cirque Analytics is an economic consulting firm that provides economic, financial, and statistical research and analysis to private and public sector clients.
2. I hold a Ph.D. and a M.A. in economics from the University of Southern California, and a B.A. in economics, with honors, from California State University, Fullerton. I have been using econometrics and economic analysis to evaluate and model the effects of anticompetitive behavior for over 25 years. From 1995 to 1998, I served as a staff economist at the United States Federal Trade Commission, in the Antitrust Division of the Bureau of Economics. While at the FTC, I conducted economic investigations into proposed mergers and other business practices with potentially anticompetitive effects, including investigations into coordinated interactions, boycotts, and price fixing. From 1998 through 2001, I was an economist at Nathan Associates (my first tenure at Nathan Associates), where I served as a consulting and testifying economist on various litigation assignments, including antitrust and class action antitrust matters. From 2001 through 2007, I was an economist at PricewaterhouseCoopers and Analysis Group Inc., where I acted as a consulting and testifying economist on various litigation matters, including those related to commercial disputes, alleged intellectual property infringement, and alleged antitrust violations. From 2007 to 2021, I served as an economist and firm officer at Nathan Associates (my second tenure at Nathan Associates), where I acted as a consulting and testifying economist on various litigation matters, including those related to alleged antitrust violations, commercial disputes, and alleged intellectual property infringement. In April 2021, I moved into my current role at Cirque Analytics.
3. I am or have been a member of several professional associations, including the American Economic Association, the Intellectual Property Law Association, and the American Bar Association, and I have served as the Chair of the Orange County chapter of the Licensing Executives Society. I have taught courses in undergraduate and graduate economics and econometrics at Johns Hopkins University, the University of Southern California, Pepperdine University, and recently retired as a Professor in the School of Business and Economics at Concordia University Irvine.

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4. My experience in economic analysis includes evaluation of the potentially anticompetitive effects of business conduct, including the measurement of the effects of such conduct. In conducting such analyses, I have often analyzed numerous relevant markets (both geographic and product markets), barriers to entry, market power, and monopolization. My experience in such matters includes numerous class actions, in which I have analyzed and assessed commonality of impact and whether methods I have used databases related to purchase transactions, invoices, and company financial performance to specify econometric models of pricing and costs, and to estimate the impacts of business combinations and cartel behavior on both direct and indirect purchasers.
5. Cirque Analytics currently charges its usual and customary rate of \$870 per hour for my work in this matter. Professional staff members employed by Cirque Analytics also assist me. Neither my compensation nor that of Cirque Analytics is contingent upon the outcome of this case.
6. My curriculum vitae is attached to this declaration as **Appendix A**. Also included in **Appendix A** is a list of the matters in which I have testified in the past four years, along with a list of my publications for at least the past ten years.

I.B. Case Background

7. In the sections below, I briefly discuss the allegations Plaintiffs have made in this case. I also provide an overview of the proposed Class Definition and the parties to this case.

I.B.1. Class Definition

8. In the Complaint, Consumer Indirect Purchaser Plaintiffs (Consumer IPPs) propose a nationwide injunctive relief class,¹ as well as classes for the 26 states and the District of Columbia in which the Consumer IPPs are seeking damages (“Indirect Purchaser States” or “Class States”).² My assignment in this matter pertains to the damages classes. Because of the similarity of the definitions of the state damages classes, I was instructed to treat the various

¹ Sixth Amended Class Action Complaint (“Complaint”), filed July 29, 2024, ¶ 359.

² I understand from counsel the relevant indirect purchaser states are: Arizona, California, District of Columbia, Florida, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, Nevada, New Hampshire, New Mexico, New York, North Carolina, North Dakota, Oregon, Rhode Island, South Dakota, Tennessee, Utah, West Virginia, and Wisconsin.

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state classes as a single class in my analysis (“the Class”). I understand that for the purpose of Consumer IPPs’ motion for class certification, the Consumer IPP Class consists of:

*All persons and entities who indirectly purchased for personal consumption one or more of the following beef products in the Class States between August 1, 2014 and December 31, 2019: beef from Defendants (whether fresh or frozen) made from chuck, loin, rib or round primal cuts. For this lawsuit, beef excludes any product that is marketed as USDA Prime, organic, No Antibiotics Ever (“NAE”), antibiotic free, 100% grass-fed, kosher, halal, certified humane, Wagyu, “American-Style Kobe Beef,” as well as any products that are ground, marinated, seasoned, flavored, breaded, or cooked.*³

9. I have been asked by Counsel for Consumer IPPs to specifically analyze potential antitrust impact with respect to the sales of Class Beef Products.⁴ It is not my opinion that products outside the Class Beef Product definition were unaffected by the alleged wrongdoing in this case. Indeed, given the nature of the allegations in this case, it is unlikely that any beef product, regardless of Class status, would remain unaffected by a price-fixing scheme such as the one alleged by Plaintiffs in this case.
10. I understand that there are other cases consolidated in this multidistrict litigation, consisting of two other proposed purchaser class cases: direct purchasers (*e.g.*, wholesalers, retailers and restaurants) who purchase directly from the Defendants; and indirect commercial and institutional purchasers (*e.g.*, restaurants) who purchase indirectly from the Defendants. I also understand that there are two proposed upstream class cases, consisting of the seller of feeder cattle (“Specht” plaintiffs or indirect producers) and feedlot operators as well as a class of purchasers of live cattle futures (“Cattle” classes, or producers).

I.B.2. Plaintiffs and Class Representatives

11. As set forth in a later section, Consumer IPPs include any entities or persons in Class States who purchased class beef products indirectly from Defendants. I understand that the proposed

³ I understand that excluded from the class are Defendants, the officers, directors or employees of any Defendant; any entity in which any Defendant has a controlling interest; any affiliate, legal representative, heir or assign of any Defendant; any federal, state, or local governmental entities, any judicial officer presiding over this action and the members of his/her immediate family and judicial staff, any juror assigned to this action. Further excluded are purchases of products that contain ingredients other than beef (except for salt or water).

⁴ The backup files produced in connection with this report include more details on the specific products that are included or excluded in the definition of Class Beef Products.

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class representatives are individuals who purchased beef indirectly from Defendants in a Class State during the Class Period.⁵

I.B.3. Defendants

12. Tyson Foods, Inc. (“Tyson Foods”) and Tyson Fresh Meats, Inc. (“Tyson Fresh Meats”) are named as Defendants in this matter.⁶ These companies are collectively referred to as “Tyson” throughout this report. I understand that Tyson is a publicly traded company with headquarters in Springdale, Arkansas.⁷
13. Cargill, Inc. and its subsidiary Cargill Meat Solutions (collectively referred to as “Cargill”) are named as Defendants in this matter.⁸ I understand that Cargill is a privately held company with headquarters in Minnesota.⁹
14. The JBS Defendants in this case include JBS S.A., JBS USA Food Company, Swift Beef Company, and JBS Packerland, Inc.¹⁰ I understand that JBS USA is based in Greeley, Colorado.¹¹
15. National Beef Packing Company, LLC (“National Beef”) is also a named Defendants in this case.¹² National Beef is headquartered in Kansas City, Missouri.¹³

⁵ Andrew Cohen (Arizona); Marcelo Lopez (California); Stacey Troupe (California); William Gee (District of Columbia); Lisa Melegari (Florida); Eric Gauchat (Illinois); Sharon Killmon (Iowa); Harold Nyanjom (Kansas); Mark Sperry (Maine); Karen Carter (Massachusetts); John Shupe (Michigan); Charlie Morgan (Minnesota); Sharon Dawson-Green (Missouri); Brent Rasmussen (Montana); David Renz (Nebraska); Kenneth Peterson (Nevada); Martin Jarmulowicz (New Hampshire); Kent Winchester (New Mexico); Brenda King (New York); Robert Trepper (North Carolina); Michelle Oversen (North Dakota); Dan Campbell (Oregon); Lindsey Lemoi (Rhode Island); Craig Margulies (South Dakota); Jacquelyn Watson (Tennessee); Cindy Abernathy (Utah); Leigh Tiller (West Virginia); and Jason Falbo (Wisconsin). See Complaint, ¶¶31-58.

⁶ Complaint, ¶¶59-60.

⁷ See “About Us”, Tyson Foods Investor Relations, accessed September 18, 2024, *available at* <https://ir.tyson.com/about-tyson/about-us/default.aspx>.

⁸ Complaint, ¶¶71-72.

⁹ See “United States of America”, Cargill, accessed September 18, 2024, *available at* <https://www.cargill.com/worldwide/united-states>.

¹⁰ Complaint, ¶¶63-66.

¹¹ See “Our Locations”, JBS Foods Group, accessed September 18, 2024, *available at* <https://jbsfoodsgroup.com/businesses/jbs-foods-usa#locations>.

¹² Complaint, ¶76.

¹³ See “Contact Us”, National Beef, accessed September 18, 2024, *available at* <https://www.nationalbeef.com/Contact-Us>.

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16. Defendants Cargill, JBS, National Beef, and Tyson were all engaged in the production, processing, marketing, and sales of beef products during the Class Period. Each of these Defendants is alleged to have participated in a scheme to increase prices for beef sold in the United States during the Class Period.

I.B.4. Plaintiffs’ Allegations

17. Defendants are alleged to have entered into a conspiracy to maximize profits by artificially inflating the price of beef being sold to the consumer. To accomplish this artificial price increase, Defendants are alleged to have engaged in a concerted scheme to reduce and restrain the competitive forces that would have led to lower prices paid by Consumer IPPs throughout the Class Period.
18. The purpose of the alleged scheme was to increase Defendants’ profits—the margin between the cost of obtaining cattle and producing beef products, and the price of selling wholesale cuts of beef. This is alleged to have been accomplished through a market share allocation scheme.¹⁴ As a result of this scheme, Defendants are alleged to have stabilized the amount of beef available for sale at retail operations, or ██████████ as one Defendant put it.¹⁵ While such a scheme would lead to higher prices paid by direct purchasers of beef, consumers ultimately feel the impact of such a scheme due to retail pass-through of price increases.
19. In later sections of this report, I discuss in greater detail the evidence that each Defendant engaged in the actions as alleged by Plaintiffs.

I.C. Assignment

20. I have been retained by Counsel for the Consumer IPPs to undertake the following tasks:
- Evaluate whether Defendants collectively held market power in the relevant antitrust market for beef.

¹⁴ William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Halbert L. White, *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393 (2011), pp. 421-423. Available at: <https://repository.law.umich.edu/mlr/vol110/iss3/1>.

¹⁵ JBS-0000167217 (Byers Ex. 1378).

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- Analyze whether the beef industry in the United States had structural characteristics over the relevant time frame which economic theory would suggest made it conducive to successful collusion.
 - Determine whether there is common evidence that all, or nearly all, direct purchasers in the supply chain relevant to Consumer IPP Class members were impacted by the alleged collusive conduct.
 - Determine whether there is common evidence that all, or nearly all, Consumer IPP Class members sustained impact such that they bore at least some portion of the overcharge.
 - Specify a methodology (or methodologies) by which the magnitude of damages sustained by the Consumer IPP Class can be accurately determined on a common basis.
21. For purposes of determining whether the alleged collusion injured all or nearly all Consumer IPP Class members, I have accepted as true Consumer IPPs’ allegations that Defendants engaged in anticompetitive conduct with respect to the supply and pricing of beef. However, my analysis does not assume that the alleged conduct had *impact*, nor does it assume that any effects of the alleged collusion were passed through to Consumer IPP Class members. I have been asked to determine, under the assumptions that the alleged collusion did in fact exist and that the Defendants are found liable, whether the collusion would have impacted Consumer IPP Class members. This task involves determining whether (1) direct purchasers were overcharged, and (2) whether direct purchasers (and any intermediate indirect purchasers) would have passed on some portion of the overcharge to all or nearly all Consumer IPP Class members.

I.D. Information and Materials Relied Upon

22. In preparing this report, I (and/or those working under my direction) have relied on numerous common sources of data and information concerning the beef industry and the distribution chain for consumers, including:
- The Complaints and other documents filed with the Court;

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- Extensive and voluminous data and documents produced by producer Defendants including transaction data, P&L data and internal business records.¹⁶
 - Data and documents produced by third parties, including transaction and cost data from a number of distributors and other intermediaries relevant to the Consumer IPP supply chain;
 - Publicly available data and information including data provided by USDA; and
 - Scholarly and industry research.
23. A full list of the materials I considered and relied upon in forming my opinions is provided in **Appendix B** or referenced elsewhere in this report. The conclusions reached in this report are based on the information and data that have been reviewed to date. In the event that additional data or information becomes available, whether through discovery or other sources, I reserve the right to update my analysis and conclusions appropriately.

I.E. Summary of Conclusions

24. Based on my analysis of the available evidence, I have concluded that the facts, evidence, methodologies, and analyses used to determine 1) whether Consumer IPP Class members paid artificially inflated prices for class beef products sold by Defendants and 2) the amount by which the prices paid by Consumer IPP Class members exceeded those that would have prevailed in the absence of the alleged cartel, are common to the Class. Specifically, I have concluded that:
- The structure of the beef processing industry was conducive to the formation and success of the alleged conspiracy. This is based on my finding that
 - Defendants dominated the market for beef;
 - Defendants controlled the vast majority of beef processing capacity during the relevant time period.

¹⁶ The sales data produced by Defendants was compiled by the consulting firm Monument Economics Group (“MEG”). Defendants also produced P&L data which was compiled by the consulting firm Brattle Group. The staff working under my direction reviewed the data preparation computer programs that MEG and Brattle provided and I have made adjustments for my analysis as I see fit.

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- Defendants represent both the demand curve for cattle and the supply curve for beef, and thus have market power in both the upstream and downstream markets.
- There are significant barriers to entry for new competitors;
 - Due to the extremely high capital/financial, technological, and regulatory costs associated with operating a successful beef processing company, Defendants have been largely shielded from meaningful competition.
 - High barriers to entry allow a cartel to earn supracompetitive prices for a sustained period of time with less (or no) risk that new entrants will emerge and compete profits away.
 - New entry is made more difficult due to the high degree of market share controlled by Defendants combined with the cattle life cycle, which makes obtaining a meaningful supply of cattle difficult and time-consuming.
- Defendants had ample opportunities to form an anticompetitive scheme;
 - Defendants are members of numerous trade organizations and industry groups that hold annual (or more frequent) meetings. Defendant executives often hold leadership positions in these organizations.
 - Defendants frequently communicate with each other for a variety of reasons, including (potentially) legitimate business purposes, social engagements, and other events. These frequent events and interactions present ongoing opportunities to coordinate, monitor, and enforce an agreement.
 - Documents show that Defendants frequently communicated through industry analysts, commentators, and other third-parties, which would further enable them to signal, communicate, monitor, and enforce an agreement.
- Defendants possessed the ability to monitor and enforce an anticompetitive scheme;
 - Through the combination of information sharing through third parties and public reporting of slaughter and pricing data through the USDA,

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Defendants were able to quickly and reliably monitor each other’s output decisions.

- The transparency of each Defendant’s output decisions through these sources enables each Defendant to closely monitor each other and enforce the alleged conspiracy.
 - Defendants possessed the ability to punish each other for cheating on the alleged agreement by expanding output, aggressively bidding for cattle, or reducing prices for beef products.
 - The Defendants’ ability to monitor, enforce, and reach an anticompetitive agreement is enhanced by the commodity-like nature of beef products.
- The alleged conspiracy in this case would affect all or nearly all purchasers of beef
 - Due to their commodity-like nature, beef products are priced through common mechanisms such as cutout values, which both enables Defendants to observe changes in prices that affect all customers, and also to punish cheating through the direct link between output expansion and pricing.
 - The widespread use of cutout values for pricing wholesale beef products means that prices respond quickly to changes in supply.
 - Because Defendants dominate the market, and because barriers to entry prevent new suppliers from entering, consumers are largely limited to Defendants’ beef products and therefore cannot avoid beef impacted by the alleged conspiracy.
 - Beef exhibits relatively low elasticity, which makes charging supracompetitive prices more feasible.
 - Statistical analysis of pricing demonstrates that prices paid for Defendants’ beef products are closely related to each other. These relationships persist across Defendants, customers, and geographic regions.
 - Methods exist which allow for the rigorous and reliable investigation as to whether prices for beef were artificially elevated during the Class Period as a result of the alleged conspiracy. These methods can be reliably applied on a class-wide basis to determine impact and calculate damages.

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- My econometric analysis demonstrates that prices paid by direct purchasers for beef products were artificially inflated during the Class Period as a result of the alleged conduct.
- Overcharges resulting from the alleged conspiracy and paid by direct purchasers would be passed through to Consumer IPP Class members.
 - Economic theory, literature, and case-specific evidence suggest that any overcharges paid by direct purchasers in this case would be passed through to consumers at the retail level.
 - Empirical methods can be reliably employed to measure the degree, if any, of pass-through in this case.
 - Econometric analysis of appropriate third-party sales and purchase data demonstrates that overcharges were passed down to end consumers.
- Using the appropriately estimated overcharges and pass-through rates, damages can be reliably calculated on a class-wide basis in this case.
- Based on my analysis to date, damages in this case total \$1.94 billion.

II. INDUSTRY BACKGROUND: THE BEEF MARKET

II.A. Consumption of Beef in the United States

25. Beef was the most popular meat in the United States prior to the 1990s, after which it was overtaken by poultry (*e.g.*, chicken). The figure below shows the average annual per capita consumption of beef compared to pork and poultry between 1970 and 2022. As of 2015, the average American consumed approximately 54 pounds of beef per year.¹⁷ Americans make repeated grocery store purchases to buy this beef throughout the year; as one Defendant estimated, the typical American consumer makes the typical consumer makes 20.4 trips annually to grocery stores to buy beef.¹⁸ While there has been a general downward trend in per capita consumption of beef over the past several decades, Defendants point out that this does not mean that demand for beef has declined. In a discussion about beef pricing and demand, a Tyson document from September 2015 notes that “it is important to remind everyone

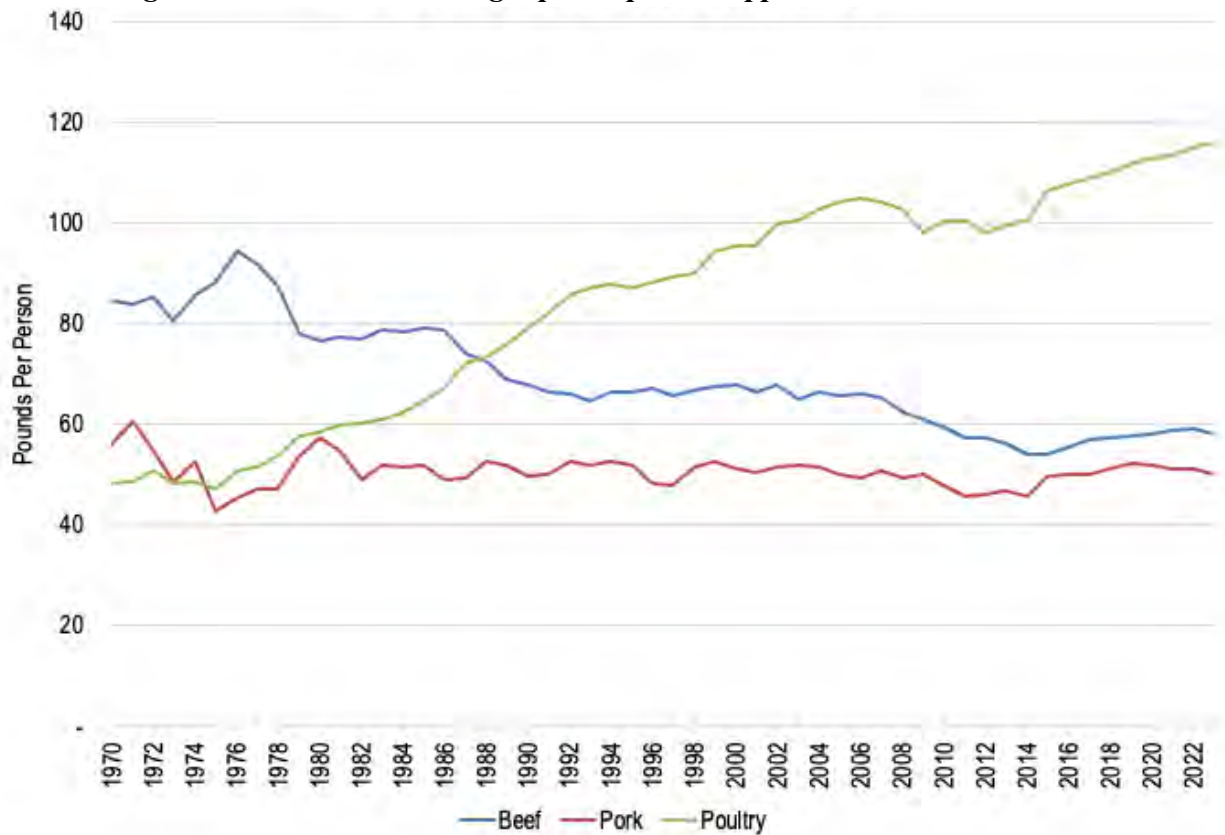
¹⁷ USDA Economic Research Service, “Meat supply and disappearance tables, historical,” accessed June 19, 2024, available at <https://www.ers.usda.gov/data-products/livestock-and-meat-domestic-data/>.

¹⁸ JBS-0000569874 at p. 9.

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participating in this conversation that per capita consumption is really a measure of production divided by resident population. **If we don’t grow it, we can’t eat it.** Per capita consumption does not provide insight into consumer’s demand for beef. Demand represents the value consumers put on beef. While per capita consumption has trended downward, demand for beef has ebbed and flowed. And, surprising to nearly everyone, demand has continued to grow as prices have gone up.”¹⁹

Figure 1. Annual Retail Weight per Capita Disappearance, 1970-2023²⁰



26. Beef is sold to consumers in the form of retail cuts. The USDA maintains Institutional Meat Purchase Specifications (IMPS) for fresh beef which standardize the characteristics of each

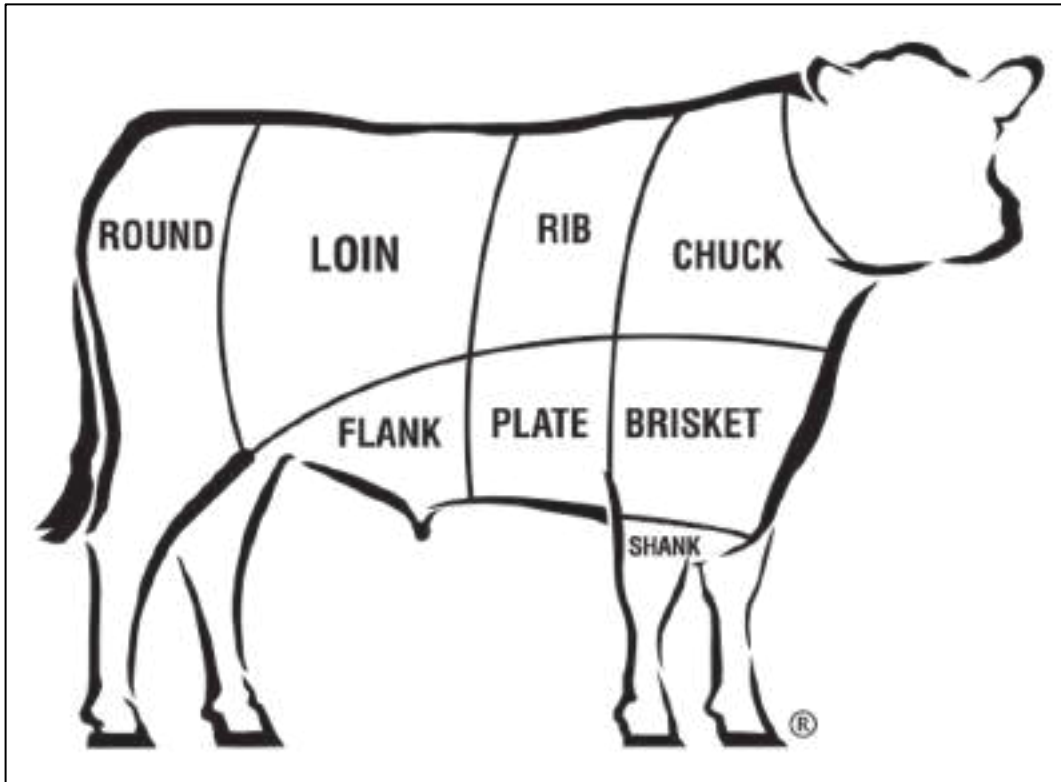
¹⁹ TYSONBEEF00682890-893 at 891 (emphasis added).

²⁰ USDA Economic Research Service, “Meat supply and disappearance tables, historical,” accessed June 19, 2024, available at <https://www.ers.usda.gov/data-products/livestock-and-meat-domestic-data/>. See backup production.

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cut.²¹ Each retail—or subprimal—cut is derived from a specific primal cut.²² The primal cuts of beef include round, loin, flank, rib, plate, chuck, and brisket. The following image shows the primal cuts of beef and examples of the retail cuts available from each primal.²³

Figure 2. Primal Cuts of Beef²⁴



27. At the wholesale level, grocery stores either buy larger muscle cuts and then apportion and package the sub-primal cuts themselves, or they buy “case-ready” beef products that come pre-portioned, packaged and retail ready. As with all proteins, there is some degree of

²¹ USDA Agricultural Marketing Service, “Institutional Meat Purchase Specifications, Fresh Beef Series 100”, accessed September 18, 2024, *available at* https://www.ams.usda.gov/sites/default/files/media/IMPS_100_Fresh_Beef%5B1%5D.pdf.

²² Karish, Brandi, “How Much Meat to Expect from a Beef Animal: Farm-Direct Beef”, Mississippi State University Extension Service, accessed September 18, 2024, *available at* <http://extension.msstate.edu/publications/how-much-meat-expect-beef-animal-farm-direct-beef>.

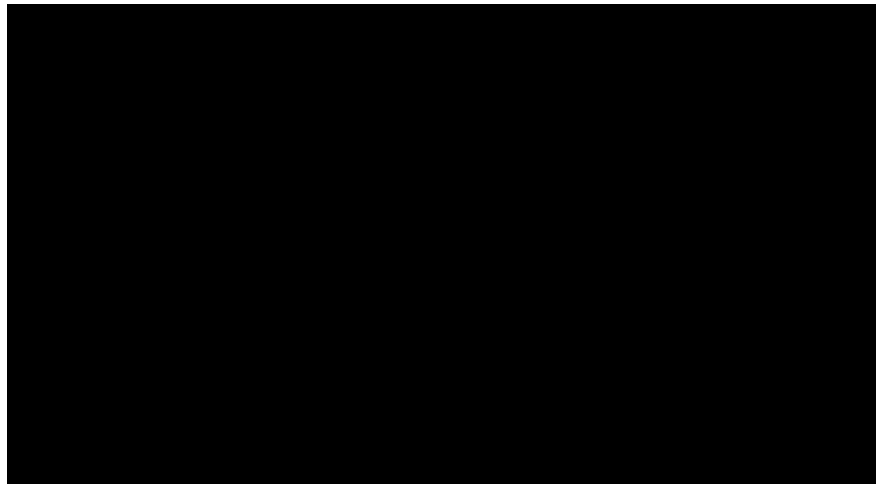
²³ In addition to whole muscle cuts, like those shown above, beef may also be sold as ground beef or stew meat. Ground beef and stew beef are derived from various primal cuts, including the chuck, rib, loin, and round. See National Cattlemen’s Beef Association, “Beef Cuts: Primal & Subprimal Weights and Yields”, 2013, *available at* <https://animalrangeextension.montana.edu/beef/documents/CarcassBreakdown.pdf>. Ground beef and stew meat are not included in the Class Products, and are thus excluded from my analysis.

²⁴ Iowa Farm Bureau, Relative Value of Beef Cuts, accessed September 23, 2024, *available at* <https://www.iowafarmbureau.com/Article/Relative-Value-of-Beef-Cuts>

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substitutability across primals and sub-primals. Depending on budgets, sales, seasonality, availability, or other factors, consumers may be willing to purchase different cuts of beef.

Figure 3. Beef Retail Segments²⁵



II.B. Cattle Supply and Beef Production Process

28. The vast majority of beef products originate from fed cattle. Fed cattle breeds include Black (and Red) Angus, Hereford, Charolais, Simmental, among others.²⁶ I understand that, for purposes of this case, fed cattle are defined as steers and heifers, whether beef brands or “Holsteins,” which are raised and fed specifically for beef production.²⁷
29. The production of beef involves several major stages or operations:
1. Cow-calf operations
 2. Stocker and backgrounding
 3. Feedlot
 4. Cattle Procurement
 5. Grading
 6. Slaughter and processing
 7. Distribution

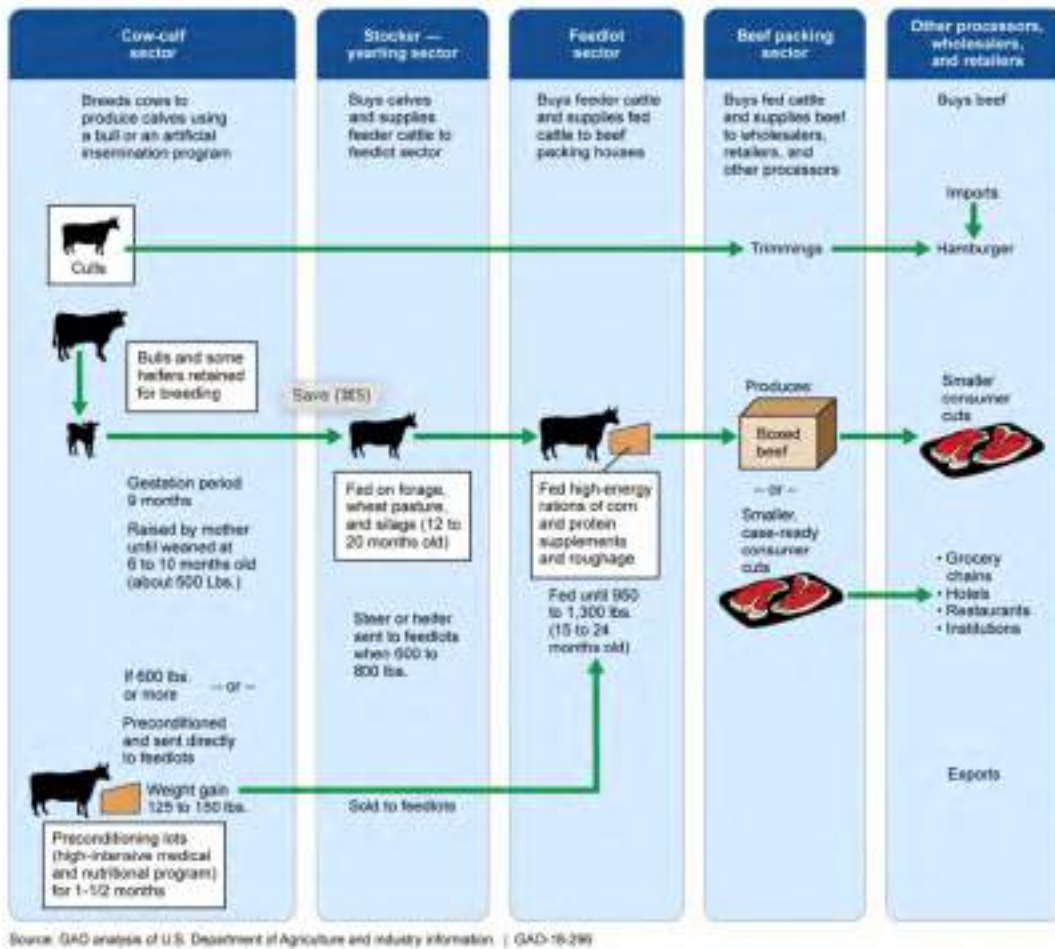
²⁵ CARGILL000904571 at 4633.

²⁶ AGDAILY, “10 most popular beef cattle breeds in the United States”, revised July 18, 2024, *available at* <https://www.agdaily.com/livestock/top-10-cattle-breeds-united-states/>.

²⁷ I understand that “Holstein” is a general term that’s used in the industry for all dairy animals. Deposition of Scott Sorensen, May 13, 2024, pp. 151-152.

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Figure 4. The Beef and Cattle Industry from Animal Breeding to Consumption²⁸



30. In the sections below, I describe these stages briefly. While I describe them distinctly, I note that it not necessarily the case that each stage is managed by a different entity. In other words, the same firm may handle multiple stages of cattle raising.

II.B.1. Cow-Calf Operations

31. Beef production begins with cow-calf operations, which produce calves that will either be raised for meat or used for breeding. Cows have an approximately 9-month gestation period,

²⁸ GAO-18-296 Report, USDA *Additional Data Analysis Could Enhance Monitoring of U.S. Cattle Market*, April 2018, available at <https://www.gao.gov/assets/gao-18-296.pdf>.

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and breeding cows are typically bred to produce one calf per year.²⁹ Calves remain at the cow-calf operation through weaning at 6 to 10 months of age.³⁰

32. Cow-calf operations are typically located on land not suited or needed for crops, where breeding cows graze on forage year-round.³¹ 24 states³² have 78.9 percent of cow-calf operations and produce 86.6 percent of beef cows.³³ While most (90 percent) of cow-calf operations are small (under 100 head), larger operations (more than 100 head) comprise more than half (56 percent) of beef cow inventory.³⁴
33. The traditional breeding season for cow-calf operations is summer, followed by calving in spring.³⁵ The majority of calves are born in February, March, or April and then weaned in the fall.³⁶ However, the majority of cow-calf operations do not have a defined breeding season.³⁷ Using shorter breeding seasons (3 or fewer months) typically produce calves that are more

²⁹ FDA, UC Davis WIFSS, “Beef Cattle Production”, *Food Animal Production Manual*, May 2016, pp. 22-34 at 29, available at http://www.wifss.ucdavis.edu/wp-content/uploads/2015/FDA/fdacoursefinal1/Beef_Food_Animal_Production.pdf

³⁰ FDA, UC Davis WIFSS, “Beef Cattle Production”, *Food Animal Production Manual*, May 2016, pp. 22-34 at 27, available at http://www.wifss.ucdavis.edu/wp-content/uploads/2015/FDA/fdacoursefinal1/Beef_Food_Animal_Production.pdf

³¹ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, available at <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>

³² California, Oregon, Idaho, Montana, Wyoming, Colorado, Texas, Oklahoma, Kansas, Nebraska, South Dakota, North Dakota, Minnesota, Iowa, Missouri, Arkansas, Mississippi, Tennessee, Kentucky, Ohio, Alabama, Georgia, Florida, and Virginia.

³³ USDA Animal and Plant Inspection Service, “Beef Cow-calf Management Practices in the United States, 2017, report 1.”, *Beef 2017*, May 2020, available at https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef2017/Beef2017_dr_PartI.pdf.

³⁴ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, available at <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>

³⁵ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

³⁶ USDA Animal and Plant Inspection Service. “Beef Cow-calf Management Practices in the United States, 2017, report 1.”, *Beef 2017*, May 2020, available at https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef2017/Beef2017_dr_PartI.pdf; TYSONBEEF01374724-749, at 730-31.

³⁷ According to the USDA, a “defined” breeding season is one “in which producers remove the bull(s) from cows and/or heifers for at least 30 days.” USDA Animal and Plant Inspection Service. “Beef Cow-calf Management Practices in the United States, 2017, report 1.”, *Beef 2017*, May 2020, available at https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef2017/Beef2017_dr_PartI.pdf.

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uniform in size at weaning.³⁸ Cow-calf operations typically aim for a calving percentage (percent of calves born relative to females used for breeding) of greater than 90 percent.³⁹

34. Some calves may go through a preconditioning program after weaning and prior to sale, which involves starting the calves on feed, castration, vaccination, deworming, and dehorning.⁴⁰ After weaning, calves may be sold directly to feeding operations or via auction.⁴¹ Auctions may be traditional (in person), tele-auction, video auction, or online auction.⁴² Cattle feedlots often purchase groups of calves categorized by sex, breed, and weight.⁴³ Some calves are sold in graded sales, in which calves from multiple cow-calf operations are combined and sorted into groups based on their characteristics.⁴⁴ Some owners of cow-calf operations may choose to retain ownership of the calves through the feeding/finishing process, even as they are sent to a feedlot.⁴⁵

II.B.2. Stocker and Backgrounding Operations

35. After weaning, many calves go to stocker or backgrounding operations.⁴⁶ Stocker operations allow calves to graze on pasture, while backgrounding involves feeding a mixed diet or stored forage.⁴⁷ This process usually continues until cattle are 12 to 15 months old.⁴⁸ The goal of these

³⁸ USDA Animal and Plant Inspection Service. “Beef Cow-calf Management Practices in the United States, 2017, report 1.”, *Beef 2017*, May 2020, available at https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef2017/Beef2017_dr_PartI.pdf.

³⁹ USDA Animal and Plant Inspection Service. “Beef Cow-calf Management Practices in the United States, 2017, report 1.”, *Beef 2017*, May 2020, available at https://www.aphis.usda.gov/animal_health/nahms/beefcowcalf/downloads/beef2017/Beef2017_dr_PartI.pdf

⁴⁰ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴¹ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴² Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴³ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴⁴ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴⁵ Cheryl A. Fairbairn et al. “Beef Cow-Calf Production”, Penn State Extension, April 6, 2020, available at <https://extension.psu.edu/beef-cow-calf-production>.

⁴⁶ FDA, UC Davis WIFSS, “Beef Cattle Production”, *Food Animal Production Manual*, May 2016, pp. 22-34 at 25, available at http://www.wifss.ucdavis.edu/wp-content/uploads/2015/FDA/fdacoursefinal1/Beef_Food_Animal_Production.pdf

⁴⁷ University of Arkansas Division of Agriculture Cooperative Extension Service, “Keys to Success in Stocker Programs,” available at <https://www.uaex.uada.edu/publications/pdf/mp184/Chapter9.pdf>

⁴⁸ CARGILL000904571, at 4574.

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operations is to increase calves’ weight and add value prior to the cattle going to a feed lot by demonstrating that the cattle are weaned, are familiar with feeding practices, and are free of health issues.⁴⁹ Stocker operations allow cattle to gain weight cheaply compared to feedlots.⁵⁰

II.B.3. Feedlot Operations

36. Feedlots are the final stage of fed cattle growth. In feedlots, cattle are fed a mix of grain, silage, hay, and potentially protein supplements.⁵¹ The feed is high energy and low in fiber, allowing the cattle to rapidly gain muscle and fat while boosting the tenderness and flavor of the beef.⁵²
37. Corn is the most common feedlot diet component.⁵³ Fiber is provided via forage, including dry hay or alfalfa.⁵⁴ Protein typically comes from soybean meal, cottonseed meal, and corn byproducts.⁵⁵ In addition, cattle in feedlots may receive implants—small pellets placed under the skin which gradually release growth hormones—to promote growth.⁵⁶ Feedlots aim for

⁴⁹ University of Arkansas Division of Agriculture Cooperative Extension Service, “Keys to Success in Stocker Programs,” *available at* <https://www.uaex.uada.edu/publications/pdf/mp184/Chapter9.pdf>.

⁵⁰ University of Arkansas Division of Agriculture Cooperative Extension Service, “Keys to Success in Stocker Programs,” *available at* <https://www.uaex.uada.edu/publications/pdf/mp184/Chapter9.pdf>.

⁵¹ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵² USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf; CARGILL000904571, at 4574.

⁵³ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵⁴ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵⁵ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵⁶ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

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cattle to gain 3.2 to 3.5 pounds per day for 150 to 180 days.⁵⁷ This length of time is referred to as “days on feed.”⁵⁸ Feedlots are also concerned with feed efficiency, or the amount of feed needed to produce one pound of weight gain; this is typically under 6 pounds.⁵⁹

38. Feedlots may purchase cattle directly from producers via video auction, cattle brokers, or as part of an established relationship with calf producers.⁶⁰ Alternatively, feedlots may procure cattle via auction, in which cattle from different producers are commingled and may be purchased individually or in large groups.⁶¹ Most auction markets operate weekly but large auction markets may operate as often as daily.⁶² Cattle sold at auction often have to be transported long distances from auction to feedlot.⁶³ Most cattle on feedlots are concentrated in only a few states: as of September 1, 2023, of the approximately 11.1 million cattle on large (1,000 head capacity or greater) feedlots, 7.42 million were located in either Kansas, Nebraska, or Texas.⁶⁴

⁵⁷ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵⁸ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁵⁹ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁰ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶¹ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶² USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶³ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁴ USDA National Agricultural Statistics Service (NASS), “Cattle On Feed,” October 20, 2023 available at <https://downloads.usda.library.cornell.edu/usda-esmis/files/m326m174z/44559z92p/pg15cz73n/cofd1023.pdf>, p. 3.

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II.B.4. Fed Cattle Procurement

39. Once cattle have reached finished or market weight, they are referred to as “fat” or “finished” cattle and are ready to be sold to a harvest facility or processor.⁶⁵ Feedlots typically prepare a list of finished cattle weekly, and buyers from packing plants select cattle to purchase.⁶⁶ Typical contracts are for delivery the following week.⁶⁷ Some feedlots and processors have long-term contracts in which processors purchase a number of cattle with agreed-upon characteristics (*e.g.*, live-weight) to be delivered by the feedlot at specific deadlines.⁶⁸
40. Over time, more and more cattle have been sold pursuant to these type of marketing contracts negotiated in advance between ranchers or feedlots and Defendant processors.⁶⁹ [REDACTED]
- [REDACTED]
- [REDACTED]⁷⁰ Defendants’ contracts with cattle suppliers vary in size, duration, and other details, but are generally similar in that they provide requirements on a) the quantity of cattle at issue, b) the terms of payment, c) the timing of delivery, d) the qualities and attributes of the cattle that are expected/required, and e) outline

⁶⁵ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁶ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁷ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁸ USDA Animal and Plant Health Inspection Service and Veterinary Services, “Beef Feedlot Industry Manual Foreign Animal Disease Preparedness & Response Plan,” *available at* https://www.aphis.usda.gov/animal_health/emergency_management/downloads/documents_manuals/beef_feedlot.pdf.

⁶⁹ See Steve Kay, “Kay’s Korner: Formula sales rule,” *Western Livestock Journal* May 30, 2019, *available at* https://www.wlj.net/opinion/kays_korner/kay-s-korner-formula-sales-rule/article_c6b2a830-82e5-11e9-8de0-1fd7d0309e7e.html (“Cash negotiated purchases slipped below 50 percent of total purchases for the first time in 2006. Formula purchases that year were 34.3 percent of the total. But they grew steadily in percentage terms most years after that. By 2018, 61.1 percent of all purchases on a national basis were on formula, versus 57.2 percent in 2017... Two reasons why cattle feeders agreed to more formula purchases were that they guaranteed them shackle space at packing plants within a certain time frame. The other was that they did not have to tie up time-consuming hours each week negotiating with packers.”).

⁷⁰ NationalBeef-00055994, p. 4.

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each party’s responsibilities for fulfilling the contract. For example, [REDACTED]
[REDACTED] 71

- [REDACTED] 72
- [REDACTED] 73
- [REDACTED] 74
- [REDACTED] 75

41. A [REDACTED] 76
[REDACTED]
[REDACTED]
[REDACTED] 77 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 78

⁷¹ TYSONBEEF01565885; TYSONBEEF01694910.

⁷² TYSONBEEF01565885.

⁷³ TYSONBEEF01565885.

⁷⁴ TYSONBEEF01565885.

⁷⁵ TYSONBEEF01694910.

⁷⁶ NationalBeef-00826398-00826403.

⁷⁷ NationalBeef-00826398-00826403.

⁷⁸ NationalBeef-00826398-00826403.

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Defendants’ documents include many other examples of similar agreements for JBS,⁷⁹ Cargill,⁸⁰ Tyson,⁸¹ and National.⁸²

42. Supply agreements like those discussed above provide benefits to the parties in the transaction by eliminating certain types of risk. Growers eliminate risk that they will not be able to find a buyer for their cattle at maturity, and processors eliminate risk that they will have to purchase cattle on the open market. Indeed, according to Carlton & Perloff, the use of such contracts allows Defendant processors to effectively approximate vertical integration.⁸³

II.B.5. Meat Quality Grading

43. Beef is also distinguished by its USDA quality grade, which is meant to establish the palatability of the meat.⁸⁴ Grading is done on a carcass basis, not an individual cut basis.⁸⁵ Grading is optional, but most beef carcasses in the U.S. are graded.⁸⁶ Grading is performed post-slaughter and after an 18-to-48-hour chilling period.⁸⁷ The USDA quality grades are, from highest to lowest quality: prime, choice, select, standard, commercial, utility, cutter, and

⁷⁹ See, e.g., JBS-0002581031-032 [REDACTED]; JBS-0002585468; JBS-0001799156-157; JBS-0002534814; JBS-0002267606.

⁸⁰ CARGILL001136422 ([REDACTED]); see also CARGILL000118277; and CARGILL001895749. In contrast, CARGILL001830729 and CARGILL001895750 show specific quantities and durations.

⁸¹ Examples of Tyson’s “Cattle Feeding” Agreements are TYSONBEEF03079953 [REDACTED]; TYSONBEEF01947899 [REDACTED]; TYSONBEEF00342016 [REDACTED]; and TYSONBEEF02020748 [REDACTED].

⁸² National Beef’s agreements with cattle feeders include, for example, NationalBeef-00862143 [REDACTED]; NationalBeef-00726650 [REDACTED]; NationalBeef-00349946 [REDACTED]; NationalBeef-01419900 [REDACTED]; NationalBeef-01021993 [REDACTED].

⁸³ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 4th ed. (Chicago, IL: Addison Wesley, 2005) (“Carlton and Perloff”), p. 395.

⁸⁴ TYSONBEEF02460541, p. 23 - 24.

⁸⁵ USDA Agricultural Marketing Service, “Institutional Meat Purchase Specifications, Fresh Beef Series 100”, accessed September 18, 2024, available at https://www.ams.usda.gov/sites/default/files/media/IMPS_100_Fresh_Beef%5B1%5D.pdf.

⁸⁶ Mississippi State University Extension, “Beef Grades and Carcass Information”, accessed Sept. 25, 2024, available at <http://extension.msstate.edu/publications/publications/beef-grades-and-carcass-information>

⁸⁷ Mississippi State University Extension, “Beef Grades and Carcass Information”, accessed Sept. 25, 2024, available at <http://extension.msstate.edu/publications/publications/beef-grades-and-carcass-information>

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canner.⁸⁸ USDA quality grades are based on two factors: marbling and carcass maturity. Higher quality grades, such as prime and choice, are associated with more marbling and lower carcass maturity.⁸⁹ The lower grades – utility, cutter, and canner – are associated with greater carcass maturity⁹⁰ and are rarely sold at retail as whole muscle cuts, instead, they are used for ground beef or for processed products.⁹¹ In addition, standard and commercial grades are sold at retail but may be designated ungraded or sold as store brand.⁹²

44. Because carcasses cannot be graded until after cattle are slaughtered, supply agreements include discounts and premiums based on the parties’ expectations for grading. If the supplied cattle grade higher than expected, the suppliers will earn more money; if the carcasses grade out lower than expected, processors’ payments to suppliers will be lower. For cash cattle, which are purchased on the spot, Defendants purchase an entire “pen” of cattle.⁹³ Because such purchases do not involve contractual provisions for premiums and discounts after slaughter, Defendants must attempt to evaluate the pen of live cattle to form expectations about the overall quality of the cattle at issue and determine an appropriate bid.

II.B.6. Slaughter and Initial Processing

45. Once cattle reach market weight and are purchased by processors, they are shipped to processing plants where they are slaughtered and prepared for further processing. The slaughter process involves removing elements of the cattle that will not be sold as traditional beef

⁸⁸ USDA Agricultural Marketing Service, “Institutional Meat Purchase Specifications, Fresh Beef Series 100”, accessed September 18, 2024, *available at* https://www.ams.usda.gov/sites/default/files/media/IMPS_100_Fresh_Beef%5B1%5D.pdf. See also TYSONBEEF02460541, pp. 23 - 24.

⁸⁹ Mississippi State University Extension, “Beef Grades and Carcass Information”, accessed Sept. 25, 2024, *available at* <http://extension.msstate.edu/publications/publications/beef-grades-and-carcass-information>.

⁹⁰ Mississippi State University Extension, “Beef Grades and Carcass Information”, accessed Sept. 25, 2024, *available at* <http://extension.msstate.edu/publications/publications/beef-grades-and-carcass-information>.

⁹¹ Larry Meadows, “What’s Your Beef - Prime, Choice or Select?”, USDA, Jan. 28, 2013, *available at* <https://www.usda.gov/media/blog/2013/01/28/whats-your-beef-prime-choice-or-select>

⁹² Larry Meadows, “What’s Your Beef - Prime, Choice or Select?”, USDA, Jan. 28, 2013, *available at* <https://www.usda.gov/media/blog/2013/01/28/whats-your-beef-prime-choice-or-select>; USDA Food Safety and Inspection Service, “Beef From Farm to Table,” Jan. 2, 2024, *available at* <https://www.fsis.usda.gov/food-safety/safe-food-handling-and-preparation/meat-fish/beef-farm-table>. See also TYSONBEEF02460541, pp. 23 - 24.

⁹³ Deposition of Charles Weinreis, July 16, 2024, p.245; Amanda Radke, “Cattle Futures 101: Fundamentals of Industry Marketing Tool Explained,” Tri-State Livestock News, Aug. 2, 2018 *available at* <https://www.tsln.com/news/cattle-futures-101-fundamentals-of-industry-marketing-tool-explained/>.

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products, such as the head, hide, and internal organs.⁹⁴ The live weight is the weight of the cattle on the farm before shipping, or weight right before slaughter. The hot carcass weight is the weight of the unchilled carcass after slaughter and removal of the head, hide, and internal organs.⁹⁵ The ratio between hot (non-chilled) carcass weight and the animal’s live weight is referred to as the dressing percentage.⁹⁶ Dressing percentage for traditional fed cattle is between 62 and 64 percent.⁹⁷ Hot carcass weight also includes bone, excess fat, and moisture loss that will not be included in retail beef products.⁹⁸ The carcass is then chilled over a 24 hour period and due to moisture evaporation around 2-5 percent of the weight is lost (“cooler shrink”).⁹⁹ Carcasses or wholesale cuts may be aged for around 4 – 5 weeks in order to improve tenderness.¹⁰⁰

II.B.7. Beef Product Processing

46. Beef carcasses are split in half, and then each side is cut into 5 major categories, including the four major primals of chuck, rib, loin and round and then the “thin meats” (which include brisket, plate, and flank).¹⁰¹

⁹⁴ Rob Holland, Dwight Loveday, and Kevin Ferguson, “How Much Meat to Expect From a Beef Carcass,” University of Tennessee Institute of Agriculture, *available at* <https://rutherford.tennessee.edu/wp-content/uploads/sites/200/2022/05/PB1822-How-Much-Meat-to-Expect-from-a-Beef-Carcass.pdf>.

⁹⁵ Karish, Brandi, “How Much Meat to Expect from a Beef Animal: Farm-Direct Beef”, Mississippi State University Extension Service, accessed September 18, 2024, *available at* <http://extension.msstate.edu/publications/how-much-meat-expect-beef-animal-farm-direct-beef>

⁹⁶ Rob Holland, Dwight Loveday, and Kevin Ferguson, “How Much Meat to Expect From a Beef Carcass,” University of Tennessee Institute of Agriculture, *available at* <https://rutherford.tennessee.edu/wp-content/uploads/sites/200/2022/05/PB1822-How-Much-Meat-to-Expect-from-a-Beef-Carcass.pdf>.

⁹⁷ Rob Holland, Dwight Loveday, and Kevin Ferguson, “How Much Meat to Expect From a Beef Carcass,” University of Tennessee Institute of Agriculture, *available at* <https://rutherford.tennessee.edu/wp-content/uploads/sites/200/2022/05/PB1822-How-Much-Meat-to-Expect-from-a-Beef-Carcass.pdf>. Grass-finished and dairy type cows have lower dressing percentages

⁹⁸ Rob Holland, Dwight Loveday, and Kevin Ferguson, “How Much Meat to Expect From a Beef Carcass,” University of Tennessee Institute of Agriculture, *available at* <https://rutherford.tennessee.edu/wp-content/uploads/sites/200/2022/05/PB1822-How-Much-Meat-to-Expect-from-a-Beef-Carcass.pdf>.

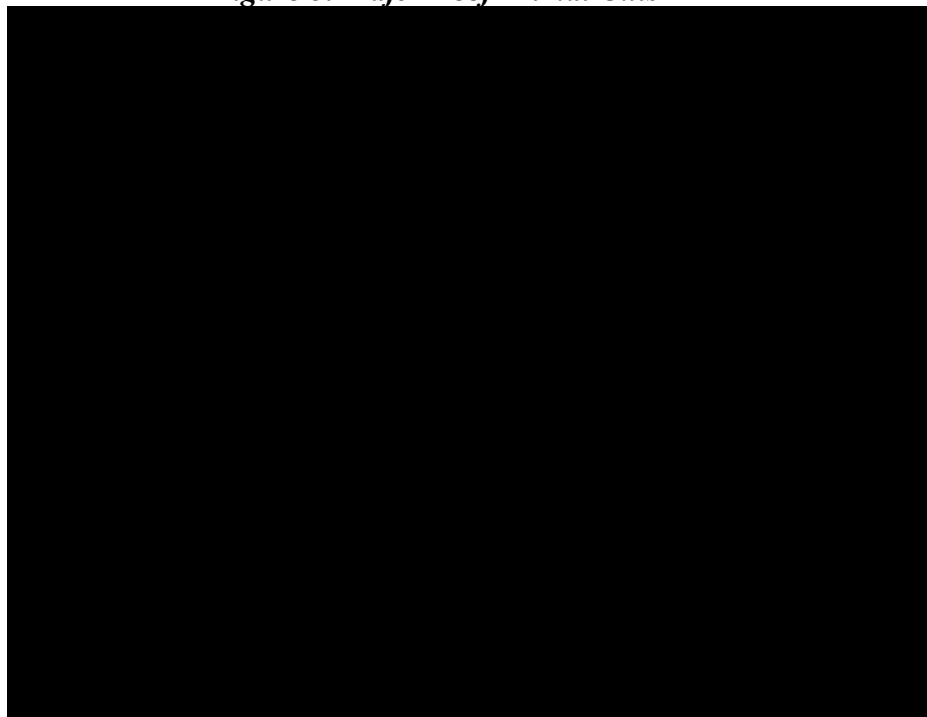
⁹⁹ Karish, Brandi, “How Much Meat to Expect from a Beef Animal: Farm-Direct Beef”, Mississippi State University Extension Service, accessed September 18, 2024, *available at* <http://extension.msstate.edu/publications/how-much-meat-expect-beef-animal-farm-direct-beef>

¹⁰⁰ Karish, Brandi, “How Much Meat to Expect from a Beef Animal: Farm-Direct Beef”, Mississippi State University Extension Service, accessed September 18, 2024, *available at* <http://extension.msstate.edu/publications/how-much-meat-expect-beef-animal-farm-direct-beef>.

¹⁰¹ TYSONBEEF02460541, p. 30.

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Figure 5. Major Beef Primal Cuts¹⁰²



47. The primal cuts can then go to cutting lines to be cut into smaller sub-primals.¹⁰³ The value of sub-primal cuts is related to the work involved to produce the cut and the demand for that particular sub-primal cut.¹⁰⁴ Whole muscle cuts are either packaged and sold to customers (including distributors and retailers), or sent on to case-ready plants for further processing and packaging. At the retail level, grocery stores may buy boxed beef which they then cut and package in-store, or case-ready beef that is already portioned into consumer-sized cuts and can be immediately stocked.¹⁰⁵

¹⁰² TYSONBEEF02460541, p. 31.

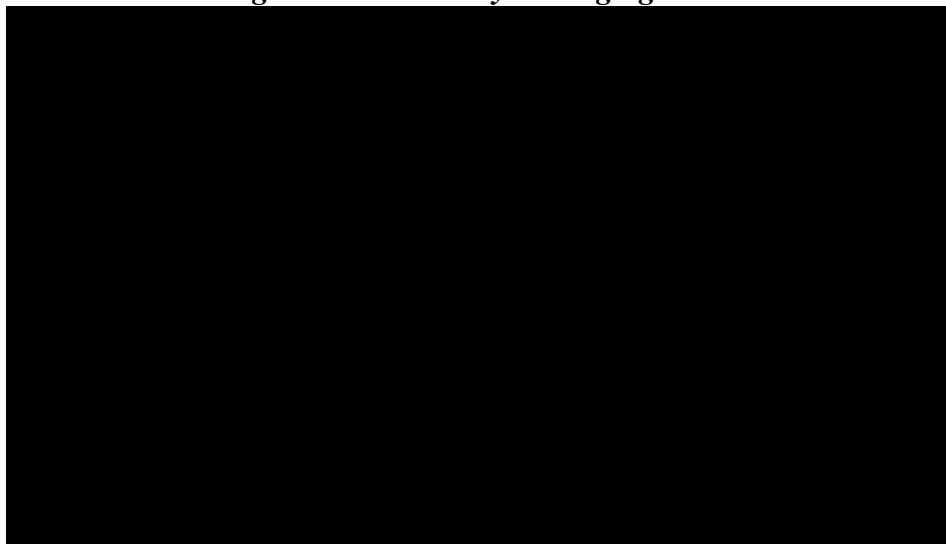
¹⁰³ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>. See also TYSONBEEF02460541, pp. 30 – 36.

¹⁰⁴ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹⁰⁵ National Beef, "Case Ready Program," accessed Sept. 25, 2024, *available at* <https://www-beta.nationalbeef.com/Products/National-Beef-Programs/Case-Ready-Program>

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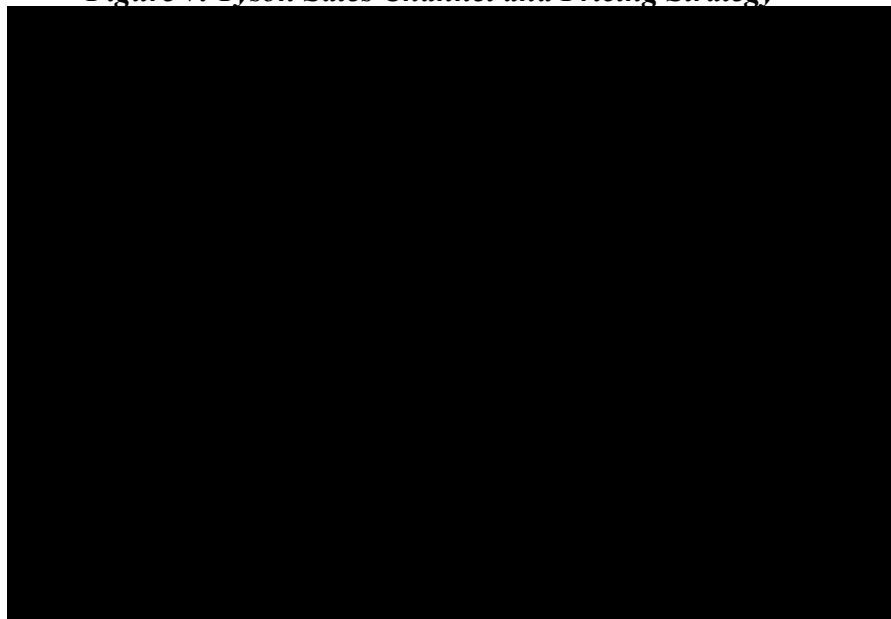
Figure 6. Case Ready Packaging¹⁰⁶



II.B.8. *Distribution to Direct Purchasers*

48. Beef processors, in general, sell to a number of direct purchasers including foodservice distributors, further processors, restaurants, and grocery stores. Beef products ultimately sold to Consumer IPP class are either sold to wholesale distributors, such as Supervalu, that then resell to retail food operations, or directly sold to grocery retailers, before being ultimately purchased by consumers.

Figure 7. Tyson Sales Channel and Pricing Strategy¹⁰⁷



¹⁰⁶ CARGILL000904571 at 4652.

¹⁰⁷ TYSONBEEF03112119, p. 16.

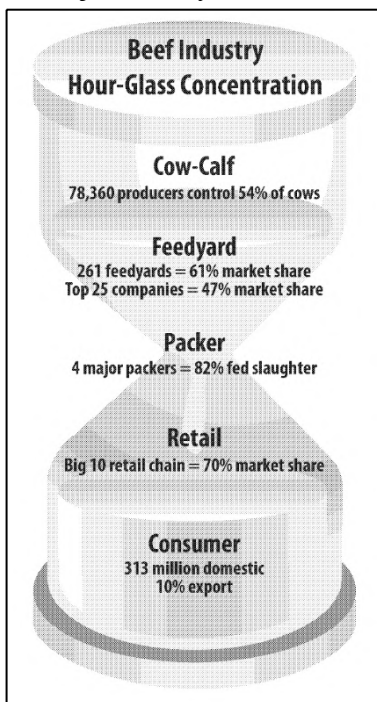
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II.C. Beef Processors

49. The Defendants in this case are the four largest beef processors in the United States, and collectively account for around 75 percent of all commercial beef production.¹⁰⁸ [REDACTED]

[REDACTED]¹⁰⁹

*Figure 8. Beef Industry Concentration*¹¹⁰



50. [REDACTED]

[REDACTED]¹¹¹ [REDACTED]¹¹² Finally,

¹⁰⁸ Cattle Buyer Weekly Top 30 Beef Packers (VTG-CB-0000004083)

¹⁰⁹ This is based on data for 2014, from CARGILL000128427 [REDACTED]. See also TYSONBEEF01374724-749, at 729.

¹¹⁰ TYSONBEEF01374724-749, at 729.

¹¹¹ See backup production; CARGILL000905651, p. 3.

¹¹² See backup production; see also CARGILL000905651, p. 3.

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[REDACTED]

[REDACTED] ¹¹³

51.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ¹¹⁴

II.D. Beef Pricing

II.D.1. USDA Cut-Out

52. After cattle are slaughtered, they are fabricated into cuts of beef and sold to direct purchasers. At a high level, the USDA collects information on the quantity of each primal fabricated and the prices at which they are sold, and calculates a primal-specific “cutout” that represents (effectively) a weighted-average price for that primal.¹¹⁵

¹¹³ See backup production; CARGILL000905651 [REDACTED]

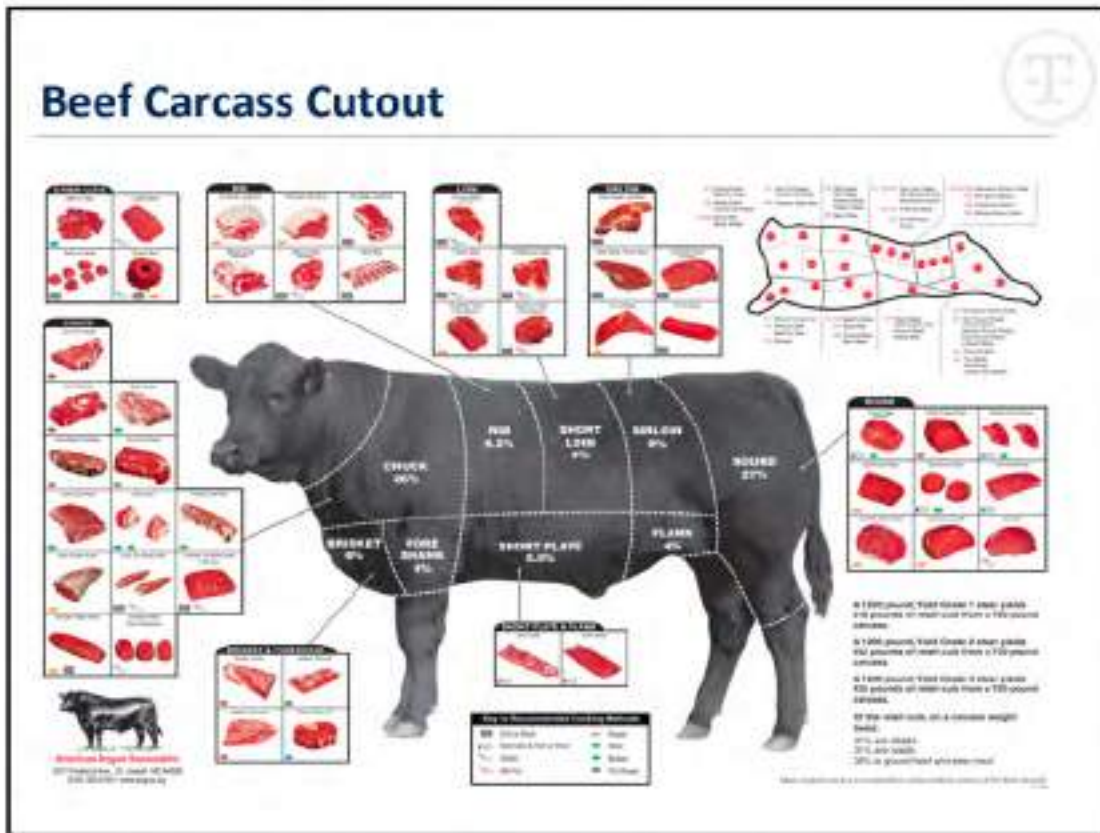
[REDACTED] See NationalBeef-00313437; NationalBeef-00382095; NationalBeef-00289747; NationalBeef-00434813; NationalBeef-01003868; NationalBeef-00401702.

¹¹⁴ [REDACTED] (see CARGILL000128427, [REDACTED]).

¹¹⁵ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, available at <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

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Figure 9. Beef Carcass Cutout¹¹⁶



53. The boxed beef cutout price is the estimated total value of a beef carcass, calculated based on the price of individual beef cuts.¹¹⁷ The USDA Agricultural Marketing Service calculates cutout values for Choice and Select graded carcasses, which are reported twice per weekday.¹¹⁸ Cutout prices are based only on negotiated sales by firms slaughtering more than 125,000 head per year.¹¹⁹ Cutout prices are used by some as the basis for formula or contract pricing.¹²⁰ The cutout of an individual processor can be seen as an indicator of performance.¹²¹

¹¹⁶ TYSONBEEF03112119, p. 17.

¹¹⁷ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹¹⁸ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹¹⁹ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹²⁰ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹²¹ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

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54. As noted, cutout prices are, in essence, a weighted average based on the price of each sub-primal and the volume of that sub-primal that is produced.¹²² A two-day weighted average price for each beef cut is calculated; these values are combined to calculate sub-primal values and then primal values.¹²³ The primal values are then aggregated based on their relative yields from the carcass to produce the cutout value.¹²⁴
55. The USDA cutout price impacted the price at which each Defendant sold beef. Bill McLaurin testified that [REDACTED] he said.¹²⁶ [REDACTED]
56. To Defendants, the cutout *was* the price of beef.¹³⁰ There are numerous documents showing Defendants discussing the impact of slaughter volumes on the cutout price.¹³¹ And Defendants discussed the aggregate rather than individual mechanism tied to increased cutout price. As National Beef CEO Tim Klein highlighted, each Defendant is not an island: “The actions of other packers affect the prices [each Defendant] pays for cattle or it sells its beef for.”¹³²

¹²² USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹²³ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

¹²⁴ USDA Agricultural Marketing Service, “User’s Guide to USDA’s Boxed Beef Cutouts”, Jan 2023, *available at* <https://www.ams.usda.gov/sites/default/files/media/LMRBoxedBeefCutoutsUserGuide.pdf>

The value of trimmings, fat, and bone is also included in the cutout. Shrink—moisture weight lost during cutting—is a small percentage of the primal weight that does not contribute to cutout value.

¹²⁵ Deposition of William McLaurin, June 25, 2024, pp. 35-36.

¹²⁶ *Id.*

¹²⁷ Deposition of Shannon Grassl, Apr. 25, 2024, pp. 118-119

¹²⁸ Deposition of Donald Kieffer, Mar. 21, 2024, p. 143.

¹²⁹ *See id.*, p. 258.

¹³⁰ *See id.*, p. 47.

¹³¹ *See, e.g.*, TYSONBEEF00414270 (Kieffer Ex. 228) (“[REDACTED]”); NationalBeef-00561791 (“[REDACTED]”); JBS-0001097563 (“[REDACTED]”); CARGILL000898620-21 at 20 (“[REDACTED]”).

¹³² Deposition of Timothy Klein, Aug. 7, 2024, p. 40.

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II.D.2. Beef Sales Contracts and Pricing Strategy

57. Defendants sell beef to a variety of customers in a variety of sales channels. In marketing their beef products, Defendants utilize one or more pricing methods, including (most commonly) formula pricing, spot pricing, fixed pricing, and forward pricing, as shown in **Figure 10** below.¹³³ As explained by [REDACTED]

[REDACTED] For spot pricing, the sales price would be negotiated between Defendants and purchasers based on the then-current market price of beef.¹³⁵ Fixed pricing involves a negotiation for recurring orders of beef product that typically delivers more than three weeks out, and involves specific volumes over a set timeframe.¹³⁶ Forward sales are also negotiated multiple weeks out, but typically only involve a one-off order of products to be delivered at a specified time in the future, such as for retailer’s weekly ad pricing.¹³⁷ For formula pricing, Defendants and purchasers agree to price products based on the regularly updated USDA cutout prices for beef products.¹³⁸ As the cutout changes over time, the price charged for beef under the contract would also change. Thus, changes in supply and demand conditions would eventually work their way into the price of beef being sold to direct purchasers.

¹³³ Deposition of Shannon Grassl, June 3, 2024, pp. 114-115, JBS-0003149932 (Grassl Ex. 521), at slides 5-6; Steve Kay, “Kay’s Korner: Formula Sales Rule”, *Western Livestock Journal*, updated June 7, 2019, available at https://www.wlj.net/opinion/kays_korner/kay-s-korner-formula-sales-rule/article_eeb2a830-82e5-11e9-8de0-1fd7d0309e7e.html; USDA Agricultural Marketing Service, “National Weekly Direct Beef Type Price Distribution,” September 17, 2024, p. 4, available at https://www.ams.usda.gov/mnreports/ams_3492.pdf. See also TYSONBEEF03112119, p. 16.

¹³⁴ Deposition of Shannon Grassl, June 3, 2024, pp. 115-116, JBS-0003149932 (Grassl Ex. 521), at slide 5.

¹³⁵ Deposition of Shannon Grassl, June 3, 2024, pp. 115-119.

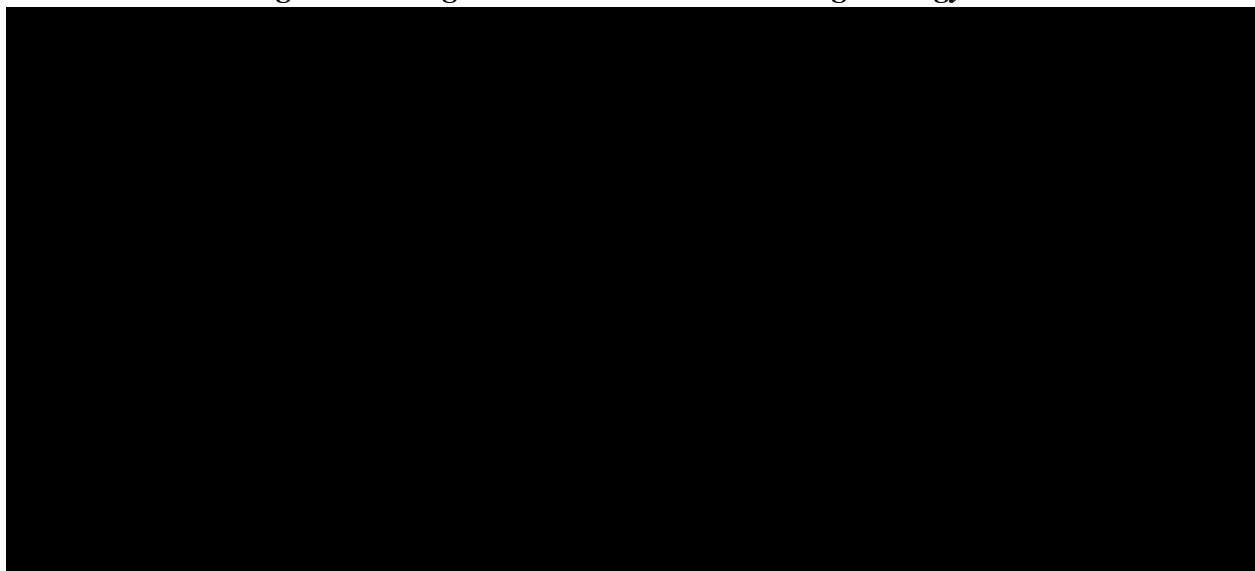
¹³⁶ Deposition of Shannon Grassl, June 3, 2024, pp. 125-126, JBS-0003149932 (Grassl Ex. 521), at slide 5.

¹³⁷ Deposition of Shannon Grassl, June 3, 2024, pp. 125-126, JBS-0003149932 (Grassl Ex. 521), at slide 6. For example, see JBS-0001528483-JBS-0001528489 at JBS-0001528488 [REDACTED]

¹³⁸ Deposition of Shannon Grassl, June 3, 2024, pp. 129-130, JBS-0003149932 (Grassl Ex. 521), at slide 6. For example, see JBS-0001528483-JBS-0001528489 at JBS-0001528488 [REDACTED]

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Figure 10. Cargill Sales Channel and Pricing Strategy¹³⁹



58. In a later section of this report, I discuss how Defendants’ alleged conspiracy would affect all or virtually all customers, regardless of whether they purchase beef using formulaic pricing or fixed price methods.

II.E. Beef Production Costs

59. By far, the largest cost to meat processors’ beef products is the price of the fed cattle. According to Defendants’ profit and loss statements during the Class Period produced in this case, Tyson’s “carcass” costs accounted for approximately █ percent of its total costs of producing and selling beef products.¹⁴⁰ Cargill’s carcass costs account for approximately █ percent of costs.¹⁴¹ █¹⁴² After buying fed cattle, meat processors’ variable costs from operating their slaughter and processing plants primarily consist of labor and material costs.
60. The price of fed cattle is determined by 1) the cost of raising and finishing the cattle and 2) the demand for cattle at the time of purchase. The cost of finishing fed cattle is determined by the cost of calves and yearlings, feed costs, including mineral and supplements, capital

¹³⁹ █ p. 29.

¹⁴⁰ Total costs from Tyson’s P&Ls are used to calculate Tyson’s total expenses excluding slaughter division’s cattle costs which are mostly reflected in processing division as well. See backup materials.

¹⁴¹ Based on costs used to determine Cargill’s EBITDA; █

¹⁴² Based on costs used to determine National Beef’s profit from operations; carcass cost is assumed to be equal to “cattle cost.” See backup materials.

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requirements, such as facilities and machinery, labor and operating costs. The largest expense for feedlots is the purchase of calves and yearlings, which accounts for more than half of total costs.¹⁴³ The next largest expense is feed, which is determined by prices for corn, modified distiller grain, hay, and other agricultural products like silage.¹⁴⁴

61. The demand for fed cattle is “derived demand” for beef, meaning that its demand “depends on, and is derived from both the firm’s level of output [of beef] and the cost of inputs.”¹⁴⁵ Since beef production is virtually the only use for fed cattle, the price of fed cattle is determined by the cost of raising cattle and the price of beef. However, since the price of fed cattle is also a major determinant of the price of beef, this means that the prices of beef and fed cattle are determined simultaneously. Shocks to the beef market will impact the price of fed cattle and vice versa.¹⁴⁶

¹⁴³ Iowa State University Extension and Outreach, “Estimated Returns to Finishing Steer Calves, Iowa,” *available at* <https://estimatedreturns.econ.iastate.edu/>; Iowa State University Extension and Outreach, “Estimated Returns to Finishing Yearling Steers, Iowa,” *available at* <https://estimatedreturns.econ.iastate.edu/>; see backup production.

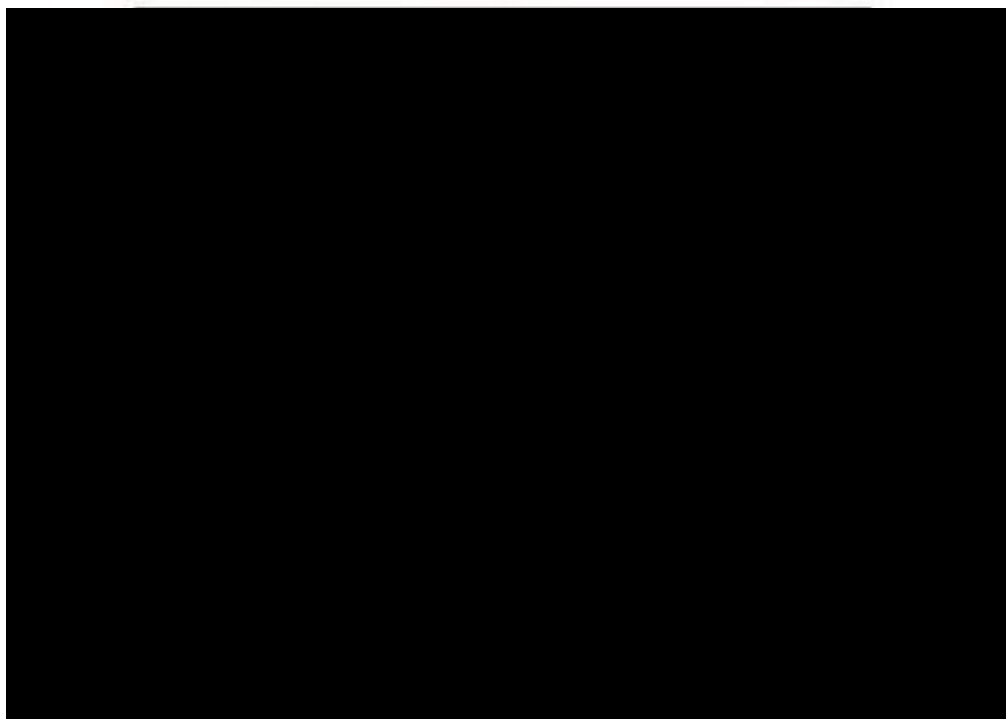
¹⁴⁴ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>; Iowa State University Extension and Outreach, “Estimated Returns to Finishing Steer Calves, Iowa,” *available at* <https://estimatedreturns.econ.iastate.edu/>; Iowa State University Extension and Outreach, “Estimated Returns to Finishing Yearling Steers, Iowa,” *available at* <https://estimatedreturns.econ.iastate.edu/>; see backup production.

¹⁴⁵ Pindyck R. and Rubinfeld D., *Microeconomics*, Eighth Edition, Pearson 2013 at p. 530.

¹⁴⁶ CARGILL001837226, pp. 14, 23-24. See also TYSONBEEF01374724-749, at 742, “[REDACTED].”

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Figure 11. Derived Demand for Fed Cattle¹⁴⁷



62. Fed cattle are most commonly priced in one of three ways: live weight, dressed weight, and grid pricing.¹⁴⁸ Live weight pricing is done on the pen, rather than individual animal, level and is based on the average weight and perceived quality of the group.¹⁴⁹ Live weight pricing is typically based on the value of a Choice carcass, then premiums (discounts) are added (subtracted) based on the expected quality.¹⁵⁰ This value is multiplied by a dressing percentage, producing the live price.¹⁵¹ Dressed weight pricing (also called “in the beef”) is done on an

¹⁴⁷ CARGILL001837226, p. 23.

¹⁴⁸ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁴⁹ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵⁰ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵¹ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

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individual animal basis, based on the hot carcass weight. Similar to live weight pricing, price is based on a Choice carcass price and adjusted for expected quality.¹⁵²

63. Grid pricing is similar to live weight and dressed weight pricing but systematizes adjustments to a base price based on the USDA Quality and Yield grades.¹⁵³ The base price may be set in several ways: the USDA’s weighted regional carcass price, the individual plant’s previous week average,¹⁵⁴ boxed beef cutout value, futures market price, or a negotiated price.¹⁵⁵ Then, adjustments are made based on a grid of USDA Quality and Yield Grades, in which the most valuable carcass would be Prime Yield Grade 1 and the least valuable would be Standard Yield Grade 5 (see **Figure 12** below).¹⁵⁶ No adjustment assumes a Choice, 650-to-850 pound steer carcass with Yield Grade 3.¹⁵⁷ Then, the plant’s average percent carcasses with a Choice grade are subtracted from 100 percent; the result is multiplied by the Choice-Select price spread and added to the base.¹⁵⁸

¹⁵² Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵³ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵⁴ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵⁵ Clement E. Ward, Ted C. Schroeder, Dillon M. Feuz, “Grid Pricing of Fed Cattle: Base Prices and Premiums-Discounts”, OSU Extension, March 2017, available at <https://extension.okstate.edu/fact-sheets/grid-pricing-of-fed-cattle-base-prices-and-premiums-discounts.html>

¹⁵⁶ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵⁷ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

¹⁵⁸ Justin Rhinehart, “Pricing Options for Fed Cattle”, *The Cattle Business in Mississippi Magazine*, April 2009, available at https://extension.msstate.edu/sites/default/files/topic-files/cattle-business-mississippi-articles/cattle-business-mississippi-articles-landing-page/stocker_apr2009.pdf

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Figure 12. Fed Cattle Grid Pricing¹⁵⁹

	YG 1	YG 2	YG 3	YG 4	YG 5
Prime	+++ ++	+++ +	+++	--	---
Choice + o	+++	++	++	---	----
Choice -	++	+	Avg. commodity price	----	-----
Select	--	--	---	-----	-----
Standard	--	---	----	-----	-----

64. Formula pricing refers to the determination of price based on reference price (*i.e.*, a price external to the transaction).¹⁶⁰ Formula pricing is incorporated in grid pricing when the base price is set with reference to some other price, rather than a negotiated price.¹⁶¹

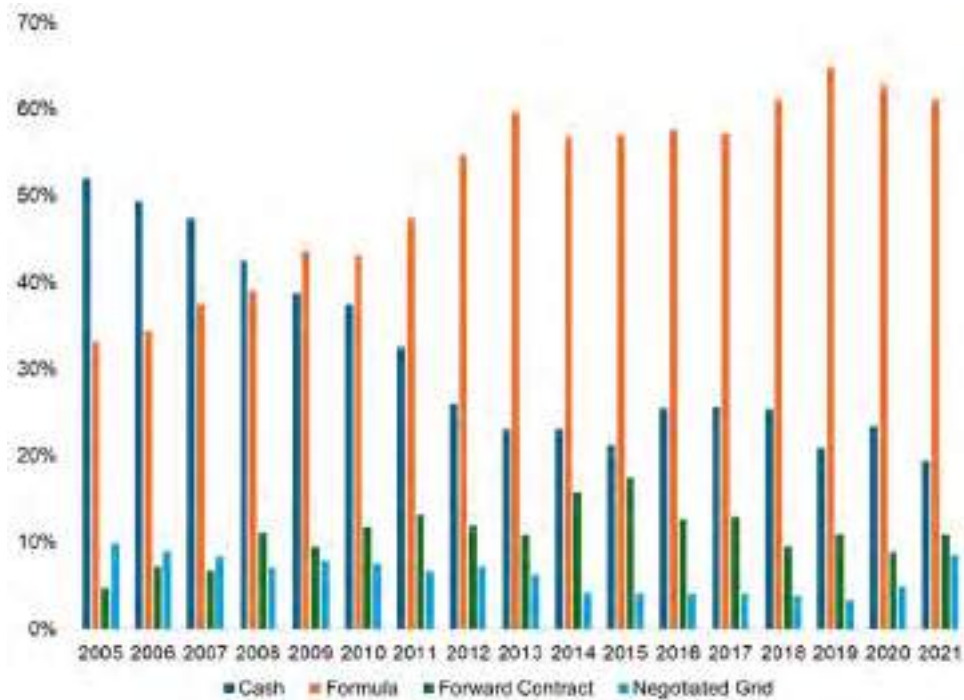
¹⁵⁹ Mark Z. Johnson, “Retained Ownership - Part 2 How Does a Beef Pricing Grid Work?” *Feedlot Magazine*, August 22, 2022, available at https://www.feedlotmagazine.com/news/feedlot_special/retained-ownership-part-2-how-does-a-beef-pricing-grid-work/article_4c025fbc-2257-11ed-a139-07aa6f86c415.html

¹⁶⁰ Clement E. Ward, Ted C. Schroeder, Dillon M. Feuz, “Grid Pricing of Fed Cattle: Base Prices and Premiums-Discounts”, OSU Extension, March 2017, available at <https://extension.okstate.edu/fact-sheets/grid-pricing-of-fed-cattle-base-prices-and-premiums-discounts.html>

¹⁶¹ Clement E. Ward, Ted C. Schroeder, Dillon M. Feuz, “Grid Pricing of Fed Cattle: Base Prices and Premiums-Discounts”, OSU Extension, March 2017, available at <https://extension.okstate.edu/fact-sheets/grid-pricing-of-fed-cattle-base-prices-and-premiums-discounts.html>

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Figure 13. Cattle Purchase Type¹⁶²



65. Ultimately, as noted above, the price paid for fed cattle accounts for around 85-90 percent of the beef product costs. However, meat processors like Defendants also incur costs from operating their slaughter and processing plants. The primary variable costs for the processing plants are labor and packaging materials, followed by transportation / freight, utilities, and operating supplies.¹⁶³ Case-ready beef products incur additional labor, material (such as polystyrene foam) and operating costs at the case-ready plants.¹⁶⁴

II.F. Beef Processors’ Margins

Defendants’ business model is relatively straightforward: they purchase cattle, slaughter them, fabricate the carcasses into cuts of beef, and sell those beef products to retail and commercial customers. Defendants earn profits (or “margin”) when the costs associated with purchasing cattle and fabricating beef products are lower than the prices received for selling their beef to their customers. [REDACTED]

¹⁶² USDA Agricultural Marketing Service, “LMR Live Cattle Annual Purchase Type Breakdown”, accessed September 23, 2024, available at <https://www.ams.usda.gov/sites/default/files/media/LMRLiveCattleAnnualPurchaseTypeBreakdown.pdf>. See backup production.

¹⁶³ See CARGILL000247432-566 at 506.

¹⁶⁴ CARGILL000247432-566 at 508.

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[REDACTED]

[REDACTED]¹⁶⁵ [REDACTED]

[REDACTED]¹⁶⁶

In other words, other things equal, each additional head slaughtered at a plant helps improve margin by spreading out the fixed costs. This is why, according to Tim Klein, CEO of National

[REDACTED]

[REDACTED]

66. Documents and testimony show that the margins Defendants earn have historically been relatively low and that there is some degree of cyclicity (due to the cattle cycle) to their financial performance. According to Tim Klein, CEO of National Beef, a margin in the range of [REDACTED] percent is considered healthy for the industry.¹⁶⁸ This is generally consistent with the figure below, which shows that processors in the United States have frequently experienced modest losses and modest gains over the 20 years prior to the Class Period. As also shown, margins began expanding dramatically in 2015 and reached heights never previously seen as the Class Period progressed.¹⁶⁹

¹⁶⁵ NationalBeef-00055994, p. 7 (emphasis original).

¹⁶⁶ NationalBeef-00055994, p. 7.

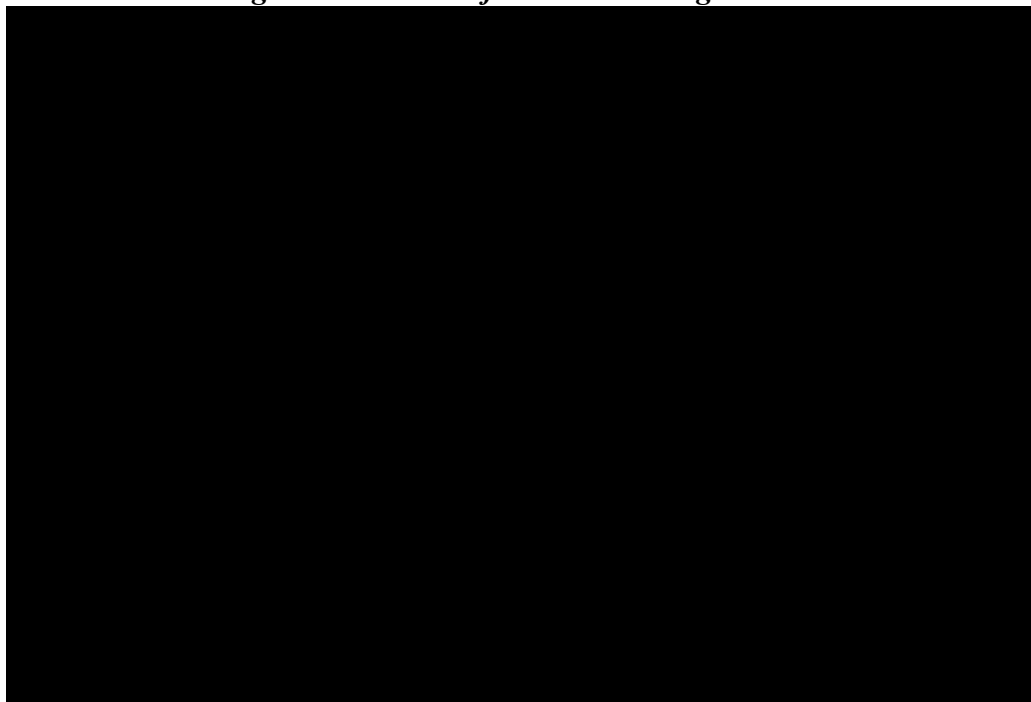
¹⁶⁷ Deposition of Timothy Klein, August 7, 2024, pp. 31; 50-51; 89-90.

¹⁶⁸ Deposition of Timothy Klein, August 7, 2024, pp. 30-31.

¹⁶⁹ NAMI Meat Industry Summit, April 10, 2019 (NationalBeef-00423676, p. 48.)

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Figure 14. U.S. Beef Processor Margins¹⁷⁰



II.G. The Supply of Cattle Directly Impacts Beef Prices

67. Basic principles of economics suggest that, other things equal, a reduction in supply will lead to an increase in price. Accordingly, it would be reasonable to expect that a reduction in the supply of beef would lead to higher prices for the beef that remains available in the marketplace. Because cattle are the sole source of beef, it is therefore similarly reasonable to expect that a reduction in the supply of cattle would, other things equal, lead to increase in the price of beef. [REDACTED]

[REDACTED]

[REDACTED] The positive relationship is enhanced by the fact that cattle are the primary cost input for beef.

68. Documents and testimony in this case demonstrate that Defendants understood these relationships when making slaughter and production decisions. [REDACTED]

[REDACTED]

¹⁷⁰ NAMI Meat Industry Summit, April 10, 2019 ([REDACTED])

¹⁷¹ CARGILL001837226, pp. 14, 23. See also TYSONBEEF01374724-749, p. 742, “[REDACTED]”

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[REDACTED] 172 [REDACTED]
 [REDACTED]
 [REDACTED] 173 [REDACTED]
 [REDACTED] 174 [REDACTED]
 [REDACTED] 175

II.H. Beef Production During the Relevant Timeframe

69. Commercial beef production in the United States grew steadily during the 1990s and reached a peak in the early 2000s before declining sharply for several years in the 2002-2004 timeframe. As shown in the figure below, following that decline, beef production rebounded for a few years before slowly declining over a period of several years starting in 2009.¹⁷⁶ The decline in beef production accelerated between 2013-2015 as prior years’ drought conditions and Defendant plant closures exerted influence. [REDACTED]

[REDACTED] 177

70. Further, beef (and fed beef) production per capita has declined significantly since 2000, with only a handful of instances of modest year over year growth, and numerous sharp decreases. The combined impact of the cattle cycle, drought conditions, and capacity reductions led to a major decline in per capita fed beef from 2013 to 2014 and the lowest levels of per capita beef production in decades in 2015.

¹⁷² TYSONBEEF03019583, p. 19

¹⁷³ JBS-0000167217.

¹⁷⁴ Klein Deposition, pp. 43-44.

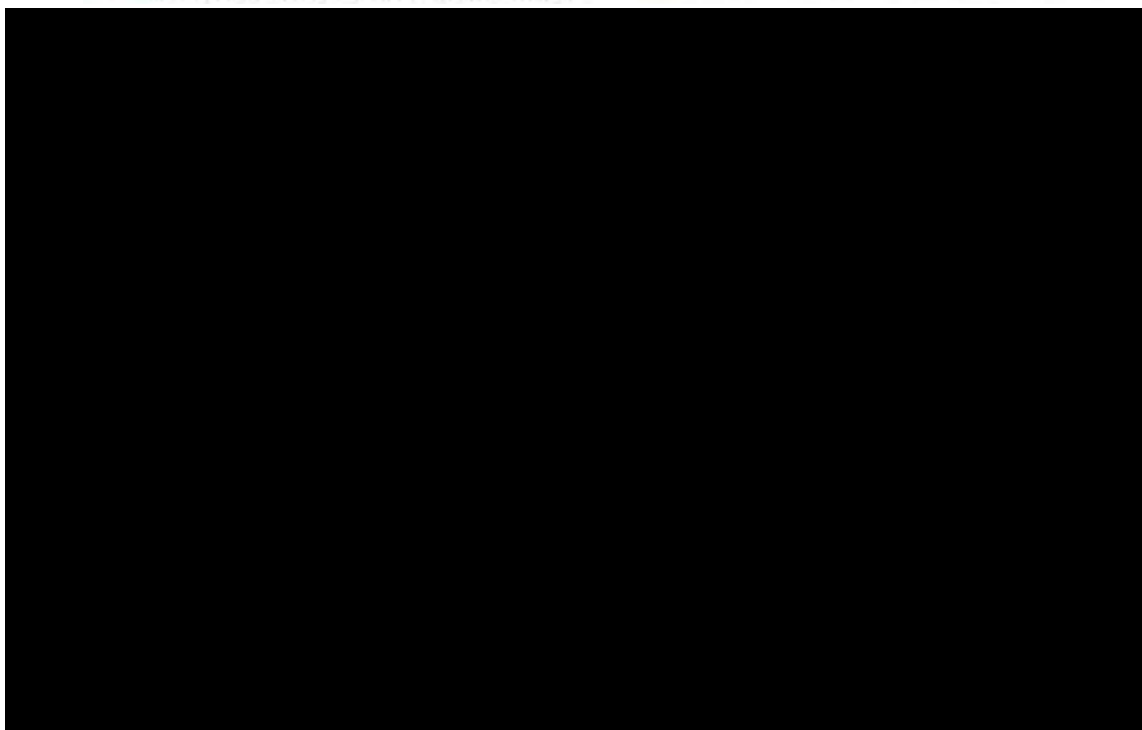
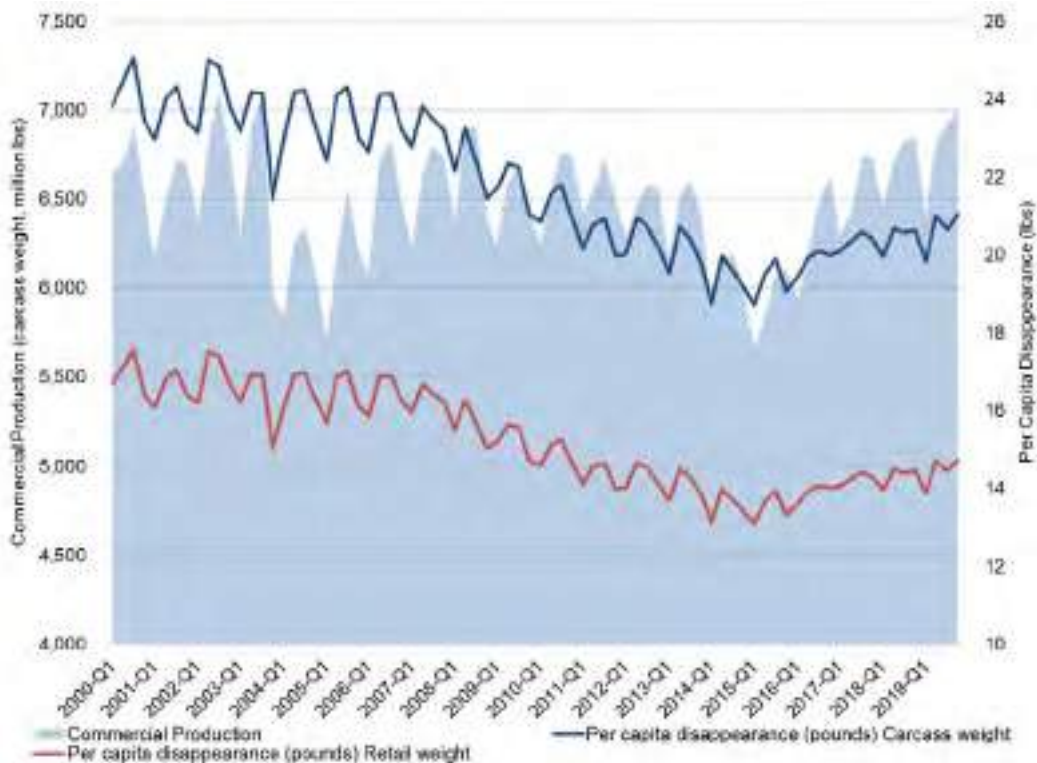
¹⁷⁵ CARGILL001341910-11; JBS-0000385655-56; NationalBeef-00558908-909 at 908; TYSONBEEF03004770-74.

¹⁷⁶ As I explain in more detail below, beef production is affected by many factors, including environmental factors like drought and the overall “cattle cycle” that drives the supply of cattle and explains some of the cyclical pattern in beef production volumes.

¹⁷⁷ [REDACTED]

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Figure 15. Beef Production and Per Capita Disappearance, 2000- 2019¹⁷⁸



¹⁷⁸ USDA Economic Research Service, “Meat supply and disappearance tables, historical,” available at <https://www.ers.usda.gov/data-products/livestock-and-meat-domestic-data/>. See backup production.

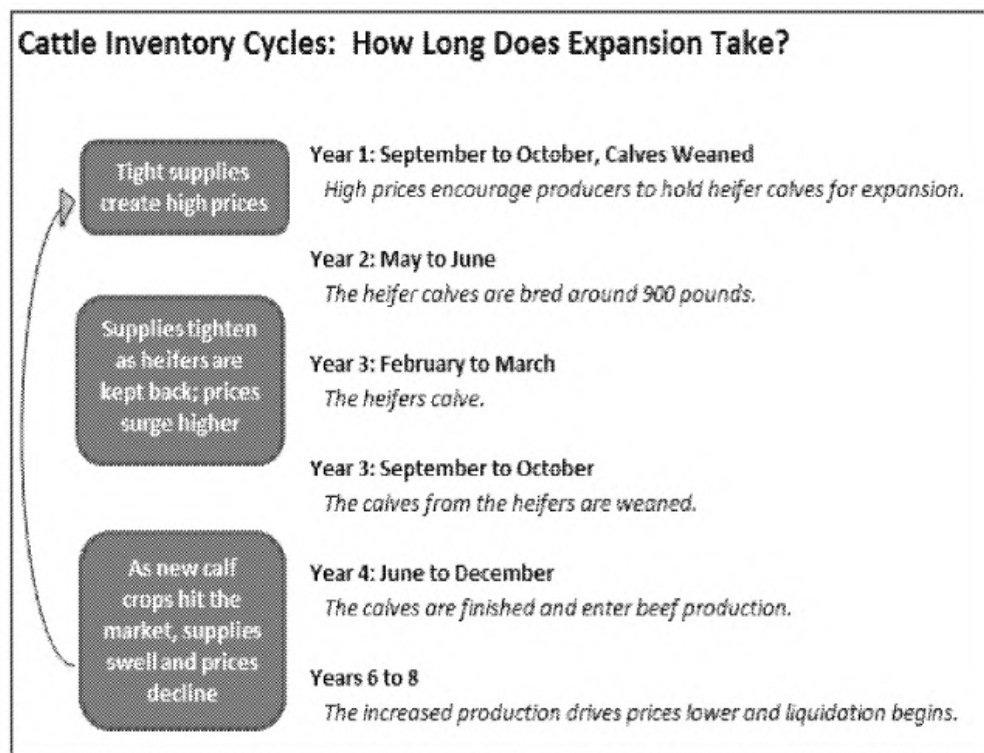
¹⁷⁹ [REDACTED]

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II.H.1. *The Cattle Cycle*

71. The production of beef in the United States is affected by many different factors that vary over time. The effects of some factors may be predictable and relatively short term, such as seasonal changes in demand or feed prices and availability, while others may be longer-term or less predictable in nature, such as drought or macroeconomic conditions. Further, the production of beef is also affected by a larger “cattle cycle” that leads to increases and decreases in the supply of cattle. The cattle cycle is largely a function of the multi-phase nature of the cattle supply chain and the long gestation and rearing periods for raising a calf to a market-ready weight.

Figure 17. Cattle Inventory Cycle¹⁸⁰



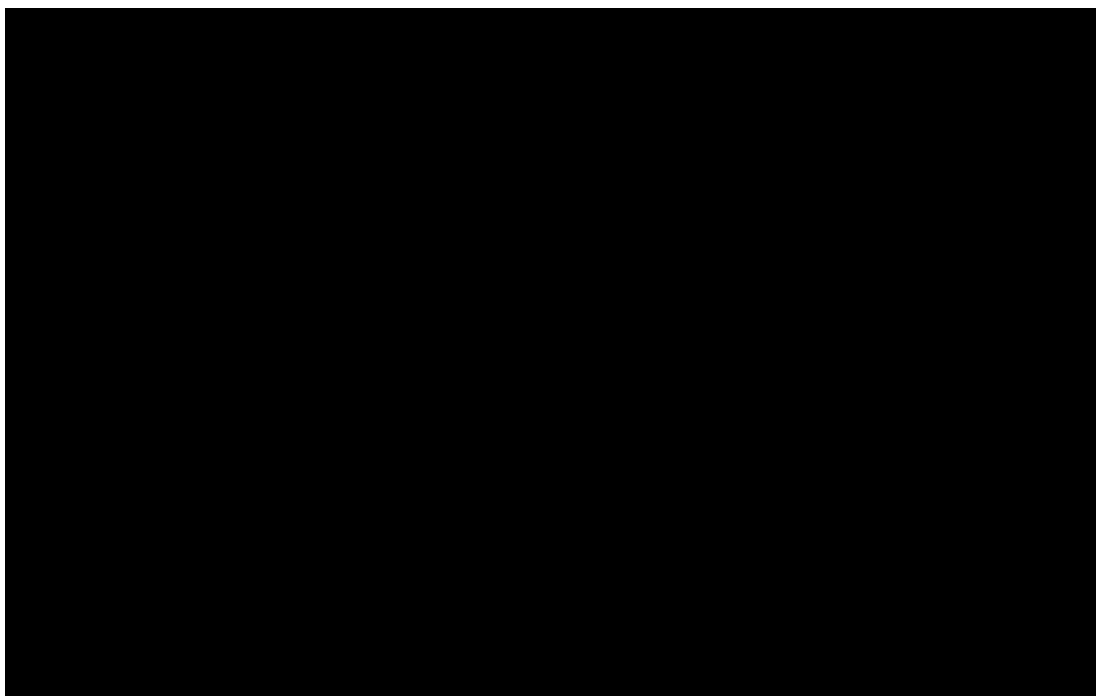
72. The cattle supply chain starts with calf operations, who face economic incentives that vary over time. When calf operations are (or are expected to be) more profitable, that may induce ranchers to expand their calving operations by increasing the proportion of female calves that

¹⁸⁰ TYSONBEEF01374724-749, at 731.

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are retained for breeding, thereby reducing the proportion that are raised as beef heifers to slaughter weight. That reduction in beef heifers leads to a temporary reduction in cattle on feed, which may (in time) decrease the supply of fed cattle and therefore beef. However, as the retained calves reach maturity and are bred, they increase the supply of calves, and eventually, fed cattle. These increases and decreases in the supply of calves, feeder cattle, and fed cattle affect the prices paid (and profits earned) each time the animal is sold.

Figure 18. Cattle Cycle and Prices¹⁸¹



73. Because of the lengthy life cycle of fed cattle from gestation to slaughter, it is difficult for beef industry participants to drastically change the supply of beef quickly. However, as I discuss later in this report, making smaller changes that are sufficiently large to impact market prices is well within Defendants’ ability.
74. While the cattle cycle is generally well understood, the precise timing, duration, or severity (*i.e.*, the total change in herd size, from peak to trough or trough to peak) of any given cycle is not known ahead of time. There are multiple reasons for this. First, the cattle cycle does not exist in a vacuum from other economic or industry factors. For example, as seen in **Figure 19** below, a recent cattle cycle led to a peak in herd size in 2007, followed by several years of

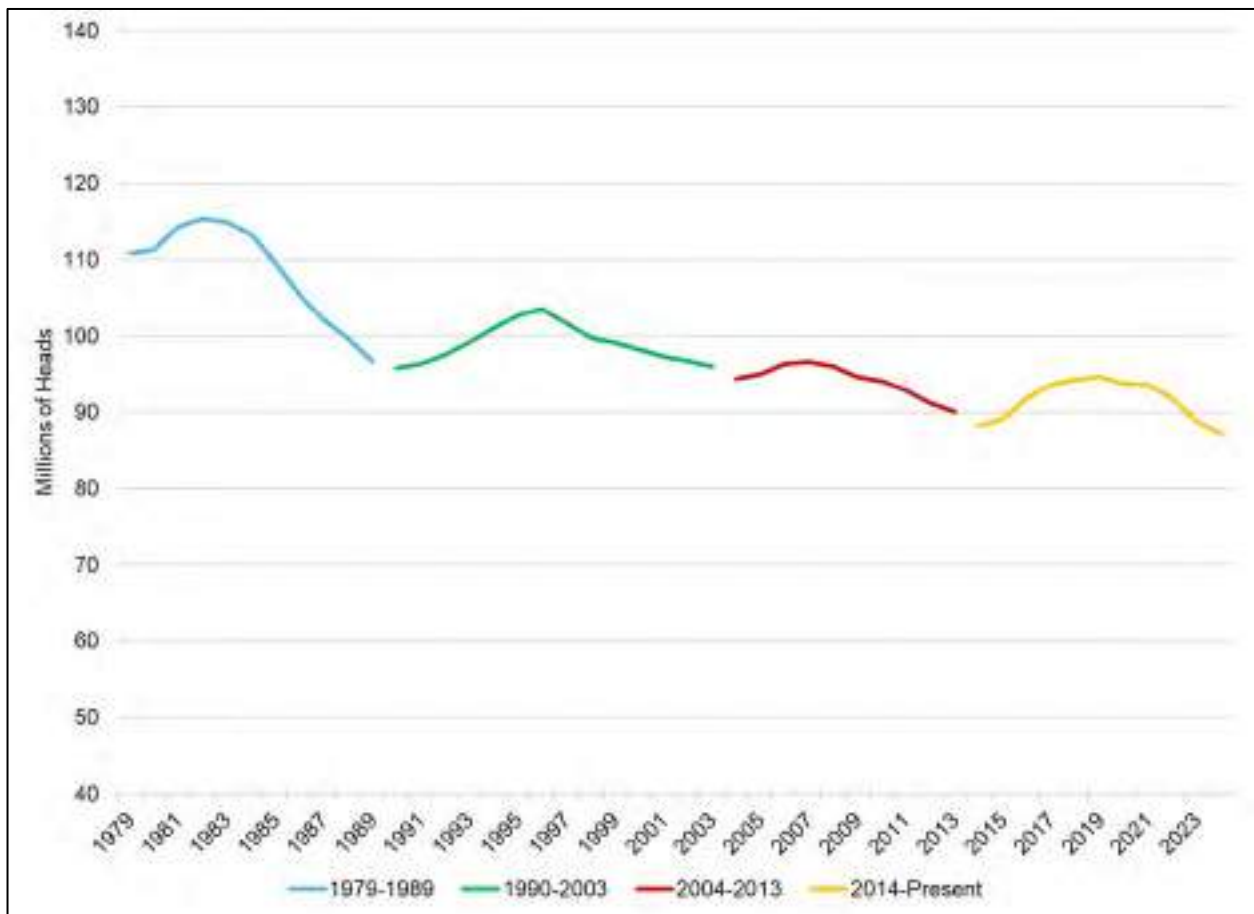
¹⁸¹ CARGILL000590482, p. 25.

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liquidation that did not end until 2014. That liquidation was then exacerbated by severe drought conditions during 2012-2014.

75. Second, different operations respond differently to the same circumstances. For example, agricultural operations with poor financial health may be unable to endure economic turbulence (*i.e.*, a recession); if firms exit during such a scenario, that may alter the timing and severity of a cattle cycle.¹⁸²

Figure 19. Cattle Cycles Since 1979 – Inventory of Cattle¹⁸³



¹⁸² David P. Anderson, James G. Robb, James Mintert. “The Cattle Cycle,” *Managing for Today’s Cattle Market and Beyond*, accessed Sep 18, 2024, available at <https://marketing.uwagec.org/MngTCMkt/CatlCycl.pdf>.

¹⁸³ USDA NASS, “Quick Stats,” available at <https://quickstats.nass.usda.gov/results/9DAB39DE-857C-388F-8C34-C4EE2A62852C>. See backup production.

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76. Similarly, it is also the case that different ranchers or producers may simply read the industry signs and incentives differently and make different decisions.¹⁸⁴ In other words, the specific path of the cattle cycle depends on the actions industry participants take before and during the cycle itself.
77. Separate from the overarching cattle cycle, as previously discussed, beef production has been declining in the United States for many years. While the “cattle cycle” leads to periodic increases and decreases in the size of the “native” herd of cattle, the overall trend has been one of decline since at least 2000, and the downward trend in fed cattle increased significantly in the years leading up to the Class Period in this case. [REDACTED]

[REDACTED]¹⁸⁵**II.H.2. Factors Affecting Beef Production & Supply During the Relevant Timeframe**

78. In addition to the larger cattle cycle, beef production and supply are affected by many factors, some of which are within the control of beef industry participants and some of which are not. For example, like all agricultural industries—particularly those involving live animals—beef and cattle production can be affected positively or negatively by changes in herd health. Such changes may be caused by disease outbreaks, the development of vaccines or other improvements in veterinary care, or even changes in regulatory controls over animal health and treatment conditions. While factors like disease can affect supply, they may have an impact on demand, depending on the risk (perceived or otherwise) of transmission to humans or other animals, media coverage, and general public perception. For example, research has shown that an isolated instance of Bovine spongiform encephalopathy (BSE or “mad cow disease”) in the state of Washington in December 2003 had a significant and relatively long-lasting impact on demand for beef.¹⁸⁶

¹⁸⁴ “Moreover, behavioral factors also influence the build-up and liquidation phases of cattle cycles. Some producers respond to early warning signs while others do not, leading to lags in producer response and thereby lengthening the cycle.” David P. Anderson, James G. Robb, James Mintert. “The Cattle Cycle,” *Managing for Today’s Cattle Market and Beyond*, p 2, accessed Sep 18, 2024, available at <https://marketing.uwagec.org/MngTCMkt/CatlCycl.pdf>.

¹⁸⁵ [REDACTED]

¹⁸⁶ Dennis, Elliott James, "A Historical Perspective on the Holcomb Fire: Differences and Similarities to the COVID-19 Situation and other Significant Market Events" (2020). *Extension Farm and Ranch Management*. 48. (“BSE [was] arguably the largest market shock ever experienced by the industry.” “Feeder cattle prices took 80 trading days before recovering to pre-BSE levels compared to 22 trading days for the Holcomb Fire.”)

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79. Climate conditions may also affect (positively or negatively) the production of cattle and beef. Drought conditions in particular have a negative impact on costs and supply. This is partially due to the impact droughts have on crops that are used for feed, such as corn and alfalfa. When corn or other feed crop supplies are harmed by droughts, they become more expensive, which can raise the costs associated with finishing cattle in feedlots. Droughts also negatively affect the growth of native fed cattle by reducing the availability and quality of grass and forage they eat prior to moving to a feedlot. Other things equal, with less forage available, cattle will grow slower and put on less weight, which reduces the amount of beef at slaughter (assuming constant slaughter age) or reduces the supply of feeder cattle (assuming delays due to inhibited growth).¹⁸⁷ Notably, due to the lengthy development cycle for cattle, the full effect of a drought on cattle supplies and beef prices is not immediately felt. For example, the sharp decline in cattle supplies in 2014 was partially a result of extreme drought conditions in the years leading up to that time.¹⁸⁸ Of course, years with better than average climate conditions have a positive impact on cattle supplies and beef production, other things equal—when crop production increases, feed costs decline and forage is plentiful. Seasonal variation in temperatures and weather conditions can also affect demand for beef, which can also affect supply decisions at the margin.¹⁸⁹
80. While most of the beef produced in the United States is also consumed domestically, exports play a role in determining the size of the market in which cattle and beef operations operate. Because US-based beef producers like Defendants export beef to customers in other countries, they are subject to changes in international demand and trade barriers. To the extent domestic processors respond to increased international demand or relaxing of trade barriers by increasing exports, domestic prices for beef would be expected to increase in response to a

¹⁸⁷ There can also be countervailing effects whereby a drought and lack of forage temporarily increases beef supply, as growers send cattle to feedlots and slaughter earlier than they would have otherwise. However, that early slaughter leads to lower slaughter in the future.

¹⁸⁸ See USDA Economic Research Service, "Drought Conditions Influence Annual Fluctuations in U.S. Beef Cattle Herd Size," Mar. 11, 2024, available at <https://www.ers.usda.gov/data-products/chart-gallery/gallery/chart-detail/?chartId=108718>.

¹⁸⁹ See, e.g., TYSONBEEF00633602 [REDACTED]

[REDACTED] : CARGILL000639301

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more limited domestic supply. Separate from changes in trade barriers, the profitability of exporting beef can be affected by fluctuations in exchange rates with trade partners.¹⁹⁰

81. For example, China banned the commercial shipment of U.S. beef in 2003. In June 2017, the USDA reached agreement with China on a protocol that would allow the U.S. to begin beef exports to China.¹⁹¹ This trade agreement had a limited affect because only a small percent of the U.S. beef was eligible for export to China because of China’s import requirements.¹⁹² And by 2018, in response to U.S. tariffs China announced tariffs on U.S. beef.¹⁹³ The North American Meat Institute noted that these tariffs could cause beef exports to cease.¹⁹⁴
82. Another example is the U.S.-Korea Free Trade Agreement, which entered into force in 2012.¹⁹⁵ At the time, Korea had a 40% import tariff on U.S. beef. Korea agreed to reduce its tariff by 2.7 percent each year—so that by 2022, the tariff rate for beef stood at 10.6 percent.¹⁹⁶ As the tariff has decreased, the share of U.S. beef exports has increased.
83. In addition to being the largest beef-consuming country in the world,¹⁹⁷ as of 2022, the United States was also the second-largest beef exporter (behind Brazil).¹⁹⁸ The primary market for U.S. beef exports is Asia, with Japan, South Korea, and China together accounting for 64 percent of exports in 2022.¹⁹⁹ As shown in the **Figure 20** below, beef exports declined sharply following an instance BSE (mad cow disease), in the United States. Following that event, beef exports gradually increased until plateauing somewhat around 2011-2012 and then declining

¹⁹⁰ “NationalBeef-00265245 at p. 15 (“Weaker dollar relative to Yen and Yuan drives incremental export demand.”).

¹⁹¹ USDA, “U.S., China Finalize Details to Send U.S. Beef to China,” June 12, 2017, *available at* <https://www.usda.gov/media/press-releases/2017/06/12/us-china-finalize-details-send-us-beef-china>.

¹⁹² TYSONBEEF03558042-8165 at 8133.

¹⁹³ TYSONBEEF03559735-9859 at 9850-51.

¹⁹⁴ TYSONBEEF03558042-8165 at 8104.

¹⁹⁵ Office of the United States Trade Representative, “U.S. – Korea Free Trade Agreement,” accessed Sept. 24, 2024, *available at* <https://ustr.gov/trade-agreements/free-trade-agreements/korus-fta>.

¹⁹⁶ USMEF, “Free Trade Agreements,” accessed Sept. 24, 2024, *available at* <https://usmef.org/export-data/free-trade-agreement/south-korea>.

¹⁹⁷ USDA Foreign Agricultural Service, “Production, Supply and Distribution,” accessed Sept. 24, 2024, <https://apps.fas.usda.gov/psdonline/app/index.html#/app/statsByCommodity> with the following parameters: Geographic Region “North America”, Commodity Groups “Meat & Poultry”, Commodities “Meat, Beef and Veal”, Group Attributes “Total Domestic Consumption.”

¹⁹⁸ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>

¹⁹⁹ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>

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during the bottom of the cattle cycle in 2013-2014. [REDACTED]

[REDACTED]²⁰⁰

84. However, despite its high volume of exports, the U.S. has not always been a net exporter of beef—it is frequently a net importer, mostly due to the cattle production cycle affecting domestic beef production.²⁰¹ During periods of lower domestic production, beef imports tend to increase, with Canada (29 percent of imports in 2022), Mexico (22 percent), and Brazil (14 percent) being the largest sources.²⁰² Additionally, the U.S. imports live cattle from Canada and Mexico, some of which are intended for further feeding and others which are designated for immediate slaughter.²⁰³

²⁰⁰ NationalBeef-00999651, p. 18. See also [REDACTED]

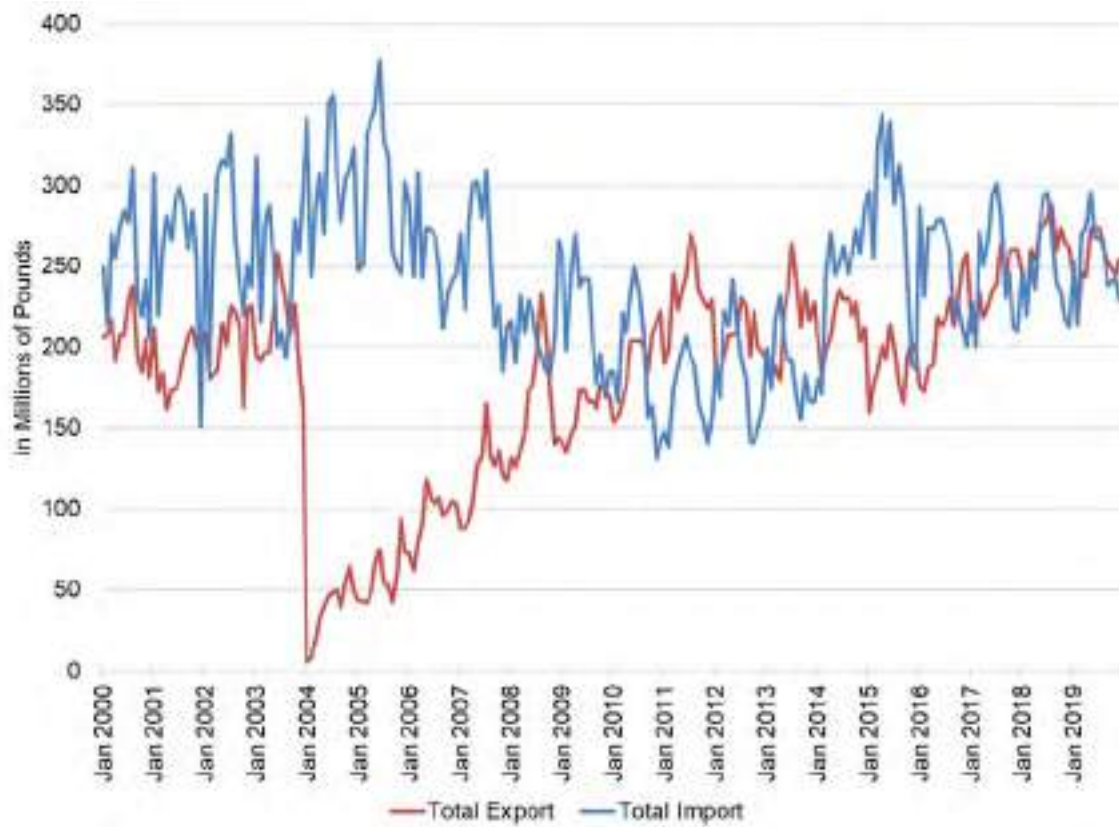
²⁰¹ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>.

²⁰² USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>.

²⁰³ USDA Economic Research Service, “Sector at a Glance”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/topics/animal-products/cattle-beef/sector-at-a-glance/>.

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Figure 20. Total Imports and Exports of Beef and Veal, Jan 2000 - Dec 2019²⁰⁴



II.H.3. Beef Processors Have Multiple Methods Through Which They Control Beef Supply

85. Defendant processors are not generally vertically integrated at the cattle production stage of the beef supply chain. Because they do not raise their own cattle, they must purchase cattle from feedlots.²⁰⁵ However, it would be a mistake to assume that this arrangement means that the supply of cattle—and therefore the supply of beef—is outside of Defendants’ control or influence. While Defendants do not dictate the broad parameters of the cattle cycle, nor do they control the decisions of independent calf operations at the bottom of the supply chain, the

²⁰⁴ USDA Economic Research Service, “Beef and veal: monthly U.S. trade - (carcass weight, 1,000 pounds)”, accessed September 18, 2024, *available at* <https://www.ers.usda.gov/data-products/livestock-and-meat-international-trade-data/livestock-and-meat-international-trade-data/>. See backup production.

²⁰⁵ I understand that Defendants may own (or have ownership stakes in) feedlots, but that in general, Defendants do not own the vast majority of cattle that they process into beef. *See, e.g.,* CARGILL001835035-5057 at 5056 (TYSONBEEF01601710-11 at 10 (Cattle Buyers Weekly “Top 30” feeders, with JBS holding one-time capacity of approximately 930,000 across 11 feedlots). While this document indicates that JBS is a large owner of feedlots, its feedlot capacity as a share of total slaughter is small.

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actions of processors nevertheless have significant influence over the supply of cattle and beef in both the short and long term.

86. Over the short run, processors have the ability to influence the supply of beef by altering their slaughter schedules, utilizing flexibility in feedlot delivery schedules, and reducing their purchases of cash cattle for slaughter. In a given week, processors acquire cattle through a combination of spot market transactions and previously negotiated contracts. With respect to the former, processors are fully in control of how many cattle they purchase at auction. Other things equal, if processors purchase more cattle in a given week, that will lead to an increase in that week’s supply of beef; if they purchase fewer cattle, that will decrease the supply of beef that week. With respect to previously negotiated contracts, Defendants have control over the delivery schedule for cattle, and may be able to adjust the timing of deliveries to accommodate changes in slaughter plans.

87. Over the medium-term, processors can influence the supply of beef by changing, terminating, or restructuring the supply agreements they make with feedlots and other fed cattle suppliers.²⁰⁶ As noted previously, while marketing agreements may provide benefits to ranchers and feedlots, they also grant control to processors in certain ways. [REDACTED]

[REDACTED]

[REDACTED]²⁰⁷ As cattle suppliers increasingly need such contracts, they become increasingly reliant on processors to not only enter into marketing agreements, but to maintain them and renew them periodically. Thus, over a longer time frame, Defendants are able to influence the supply of cattle by changing the quantity of cattle they negotiate and contract for through marketing contracts. While cattle ranchers are still free to raise as many cattle as they choose, electing to raise more

²⁰⁶ [REDACTED] See NationalBeef-01021993; *see also* NationalBeef-00237278-82 at 78; NationalBeef-00237470-73 at 70; NationalBeef-00153611-16 at 11; TYSONBEEF02104335-39 at 39; CARGILL000122080; JBS-0000352136.

²⁰⁷ [REDACTED] CARGILL001915666-69 ([REDACTED]); Lee Van Der Voo/High Country News, “Betting the ranch,” *The Counter*, December 20, 2021, *available at* <https://thecounter.org/betting-the-cattle-ranch-easterday-ranches-price-of-beef/> (accessed September 24, 2024).

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cattle than they have contracted exposes them to increased financial risk. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 208 [REDACTED]
[REDACTED]
[REDACTED] 209 [REDACTED]
[REDACTED] 210

88. Over the longer term, as the owners and operators of the vast majority of fed cattle slaughter facilities, Defendants effectively represent the demand curve for fed cattle (as well as the supply curve for beef), are thus able to affect the cattle supply over the long term by making changes to their slaughter capacity. Feeder cattle are of little (or no) value without a place to have them slaughtered, and thus ranchers and other industry participants closely monitor changes in the packing industry’s capacity. Thus, processors can send clear and unmistakable signals to upstream producers by expanding slaughter capacity (by opening new plants or expanding existing facilities) or by decreasing slaughter capacity (by shuttering existing facilities, abandoning plans to shift production lost from a plant closure, or otherwise reducing the throughput capabilities of existing plants).
89. In a later section of this report, I discuss evidence that Defendants routinely wielded their influence in these markets to control the supply of beef available for purchase through a combination of long-term reductions to capacity, inhibitions on growth in capacity, and reductions to their kill schedules. I also discuss evidence that Defendants communicated about these decisions with each other. By coordinating kill cuts, each Defendant benefits from the industry-wide restraint while continuing to capture their own share of the market.

208 [REDACTED]
209 [REDACTED]
210 [REDACTED]

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III. COMMON ECONOMIC EVIDENCE AND CASE EVIDENCE IS CONSISTENT WITH DEFENDANTS’ ALLEGED COLLUSION

90. When studying whether antitrust violations, such as those alleged against the Defendants in this matter, impacted the prices that customers paid, economists typically look at firm behavior, as well as several factors related to the market at issue. Economists may evaluate whether firms were monitoring output levels or prices, whether they were engaging in mechanisms to advance or enforce collusive behavior, the nature of the products at issue, and the structural characteristics of the industry itself. For example, economists look at characteristics of the market, such as whether Defendants collectively had sufficient control over the market; whether there are barriers to entry; inelastic demand; and whether there are mechanisms that facilitate the implementation and enforcement of a cartel. As I explain below, based on evidence and analysis common to members of the proposed Consumer IPP Class, the characteristics of the beef industry are conducive to the successful implementation and execution of the collusion alleged in this matter.

III.A. The Beef Industry is Characterized by Factors that Facilitate the Successful Formation and Maintenance of a Collusive Scheme

91. In this section, I discuss and evaluate how characteristics of the beef market during the relevant time period facilitated the formation, survival, and effectiveness of Defendants’ alleged collusion. In other words, I address how the nature of the beef industry not only facilitated Defendants’ alleged collusion, but also increased the likelihood that such collusion would be successful (*i.e.*, the alleged collusion would result in widespread impact to the Class). Specifically, I discuss the commodity-like nature of the beef products at issue, the relatively inelastic nature of demand for beef, and the presence of trade organizations and other circumstances that enable competitors to meet, communicate, monitor, and otherwise engage in collusive behavior.

III.A.1. Beef Products are Commodity-like in Nature

92. Economists recognize that cartels are more likely to form when the products sold by the would-be competitors are homogeneous or commodity-like.²¹¹ When different suppliers in an industry

²¹¹ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 3rd ed. (Chicago, IL: Addison Wesley, 2005), at p. 135. See also Posner, Richard., *Antitrust Law*, 2nd Ed., University of Chicago Press, 2001 (“Posner”),

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offer a similar line of products, customers are less likely to choose a vendor on the basis of product variety and are more likely to choose on the basis of price. In a commodity industry, the price that each individual supplier receives--the market price--depends on the cumulative supply decisions of all industry participants rather than just the supply decisions of that individual supplier. Although an individual supplier often has the incentive to increase production to maximize its own profits, if all suppliers increased production, then this increased production could lead to lower prices and reduce the profitability of the industry as a whole. Thus, the commodity nature of the product provides the industry with an incentive to collectively agree to reduce total supply below what firms behaving independently would produce, in order to maximize collective industry profits. As explained by Economists Dennis Carlton and Jeffrey Perloff, “Working cooperatively, the cartel members gain from the output reductions of each firm. When all firms belong to the cartel, all the gains from reducing output and raising price go to the cartel, which divides the gains among its members. As a result, it pays the cartel to reduce total output below the competitive level, even though it would not pay any competitive firm to reduce its output individually.”²¹²

93. One of the beef industry’s leading benchmarks or reference points is the CME Boxed Beef Index. According to the CME, the BBI “reflects the prices paid for Choice and Select beef using the daily cutout values, as reported by the United States Department of Agriculture.”²¹³ The existence and use of indices like the CME’s BBI is further evidence of the commodity-like nature of beef products. By its very construction, it is an index comprised of prices for beef produced and marketed by all Defendants (and other independent processors), without regard to their specific brand, market share, or firm characteristics. Further, the BBI (and more generally, the USDA’s cutout values) can be used as a reference point for any beef products, which further demonstrates the commodity-like nature of them. The availability of cattle futures contracts—which are standardized contracts (40,000 pounds) to take delivery of a full-

at p. 75 – 76. Further, an industry in which price competition is more important than other forms of competition, is more susceptible to collusion since it restricts other avenues in which companies may be able to cheat. See Posner 76 – 77.

²¹² Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 3rd ed. (Chicago, IL: Addison Wesley, 2005), at p. 124.

²¹³ See CME Group, "About Listings," accessed Sept. 25, 2024, <https://www.cmegroup.com/trading/about-listings.html>.

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grown cattle—is further evidence of the commodity-like nature of cattle, and therefore of beef.²¹⁴

94. Defendants and industry participants discussed that beef products are commodity-like in that many of their customers do not differentiate by brand. For example, [REDACTED]
[REDACTED]²¹⁵ Similarly, [REDACTED]
[REDACTED]
[REDACTED]²¹⁶ [REDACTED]
[REDACTED]
[REDACTED]²¹⁷ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]²¹⁸

95. Deposition testimony from Defendants, direct purchasers, and indirect purchasers like members of the proposed class all point to beef products as commodity-like in nature. For example, National Beef’s CEO Tim Klein explained that “the general conclusion is increased production would compress margins, supply and demand. It’s a very commodity business.”²¹⁹ Klein’s conclusion would only be true if National Beef’s beef products were substitutable for other processors’ beef products (and vice versa). Likewise, [REDACTED]
[REDACTED] agreed that boxed beef products are commodities, and that the products from the processors are going to be substantially similar.²²⁰ Consumers likewise testified to seeing no difference between defendants’ beef products.²²¹

²¹⁴ CME Group. “Live Cattle Futures Contract Specs,” accessed Sept. 18, 2024, *available at* <https://www.cmegroup.com/markets/agriculture/livestock/live-cattle.contractSpecs.html>.

²¹⁵ TYSONBEEF03056981-7053 at 7039.

²¹⁶ JBS-0000819257.

²¹⁷ TYSONBEEF03018240-59 at 48.

²¹⁸ JBS-0000350952.

²¹⁹ Deposition of Timothy Klein, August 7, 2024, pp. 271-272. Kellee Kriese (Tyson) testified that the USDA refers to cattle “as a commodity” (Deposition of Kellee Kriese, February 1, 2024, p. 222).

²²⁰ [REDACTED]

²²¹ Deposition of Andrew Cohen, May 16, 2024, p. 37 (testifying there are no brands of beef that Mr. Cohen associates with Tyson, Cargill, JBS, or National Beef); Deposition of Kenneth Peterson, July 19, 2024, p. 58 (same); Deposition of Lindsey Lemoi, July 30, 2024, p. 65.

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96. The presence of inter-Defendant sales is further evidence that the products at issue are commodity-like in nature, because products must be highly substitutable if a firm can supply its own customers’ demand with another producer’s beef. Defendants’ transactional data shows that every Defendant sold hundreds of millions of pounds of beef to other Defendants throughout the Class Period.²²²
97. Based on the commodity nature of beef products, price levels depend on aggregate supply and aggregate demand. Holding demand constant, any reduction in aggregate supply leads to an increase in price levels. When acting independently, a processor bears the entire cost of reducing its production in the form of lower sales and lower revenues, while the rest of the industry benefits. Thus, absent collusion, processors will be less willing to unilaterally cut production than under the world in which processor have collectively agreed to cut production or to restrain the growth of production. Therefore, the alleged supply restriction would be expected to result in lower output and higher prices than would be achieved absent the alleged collusion. Additionally, the lower output and higher prices would—through the use of cutout values—lead to widespread (common) impact among purchasers of beef products.

III.A.2. Beef Exhibits Relatively Inelastic Demand at a Competitive Price

98. Inelastic demand facilitates the formation and success of a cartel.²²³ Demand elasticity measures the responsiveness of quantity demanded of a product because of changes in its price. When the percent change in quantity demanded (in absolute value) is less than the percent change in price demand is said to be inelastic. Economic theory recognizes that industries with inelastic demand are more susceptible to cartel behavior, because of the potential for large increases in revenue resulting from the higher cartel prices.²²⁴ If customers are not willing to switch away from the product offered by participants in a cartel in response to cartel-imposed price increases, then the members of the cartel jointly have the market power to impose these price increases. Or put another way, inelastic demand means that relatively large increases in market price will result in relatively small reductions in quantity demanded, enabling each individual conspirator to earn supracompetitive profits. [REDACTED]

²²² See backup production.

²²³ Posner at pp. 71-72.

²²⁴ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 3rd ed. (Chicago, IL: Addison Wesley, 2005), at pp. 126, 130-131.

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[REDACTED]

[REDACTED]²²⁵ [REDACTED]

[REDACTED]²²⁶

99. Economic research consistently finds that demand for beef is inelastic. A review of the academic literature on beef demand found, “Beef own-price demand elasticity estimates ranged from -0.28 to -0.85 with most estimates falling between -0.40 and -0.70.”²²⁷

100. Defendant documents also indicate that beef demand is relatively inelastic. [REDACTED]

[REDACTED]

[REDACTED]²²⁸ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²²⁹

101. The inelastic demand for beef means that as producers collectively restrict industry supply, total industry revenue, and hence total industry profits, increase. Thus, through the alleged collusive conduct, Defendants could achieve supracompetitive profits by cutting supply even when doing so would be otherwise contrary to each firm’s individual self-interest (absent the agreement) because it would lower individual firms’ profits. For small suppliers, even large cuts in production will not lead to meaningful increases in market prices unless other processors cut as well. For example, if a processor with 2 percent of the market unilaterally cuts production by 10 percent, it only leads to a 0.2 percent decline in market-wide production. However, by acting collectively, when demand is inelastic and customers are relatively insensitive to price, reducing industry output enables cartel members to charge supracompetitive prices and earn supracompetitive profits. Further, because of the way that

²²⁵ JBS-0000167217 (Byers Ex. 1378).

²²⁶ CARGILL001799074 at p. 22.

²²⁷ Ted C. Schroeder, Thomas L. Marsh, and James Mintert, “Beef Demand Determinants,” (Report Prepared for the Joint Evaluation Advisory Committee, 2000), p. 11. Glynn T. Tonsor, Jayson L. Lusk, and Ted C. Schroeder, “Assessing Beef Demand Determinants,” (Prepared for the Cattlemen’s Beef Board, 2018), at p. 7, *available at* https://www.beefboard.org/wp-content/uploads/2019/06/Assessing-Beef-Demand-Determinants_FullReport.pdf.

²²⁸ [REDACTED]

²²⁹ CARGILL001799074, p. 22.

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beef is priced through cutout values in the marketplace, the combination of anticompetitive actions and relative inelasticity implies that all or virtually all customers would be impacted.

III.A.3. Defendants Controlled the Beef Market

102. For a cartel to successfully implement an agreement, the members must possess sufficient market power, *i.e.*, the ability to influence prices.²³⁰ A conspiracy is less costly to create and maintain, all else equal, when there are few participants in the potentially cartelized market, or when a small number of firms in that market collectively have a large market share. The higher the number of participants, the more difficult it is to reach consensus and coordinate behavior, all else equal. As the U.S. Department of Justice (“DOJ”) states in the context of seller cartels: “Collusion is more likely to occur if there are few sellers. The fewer the number of sellers, the easier it is for them to get together and agree on prices, bids, customers, or territories. Collusion may also occur when the number of firms is fairly large, but there is a small group of major sellers and the rest are ‘fringe’ sellers who control only a small fraction of the market.”²³¹
103. In this case, the number of Defendants is low, which benefits the cartel’s formation and maintenance. An important indicator of a cartel’s ability to influence prices is the market share controlled by the cartel’s participants. When the cartel participants have a high collective market share, it is difficult for non-participants in the cartel to undermine its effectiveness. As described in this section, the market for beef is collectively dominated by the Defendants.
104. Defendants own and operate nearly all major U.S. beef processing plants. Between 2012 and 2018 they constituted over 80 percent of the market for fed cattle.²³²

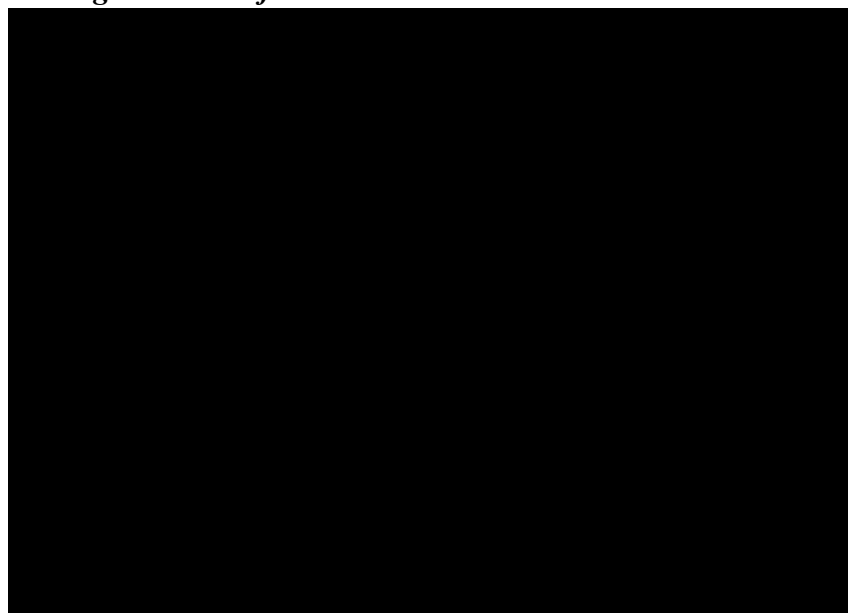
²³⁰ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 3rd ed. (Chicago, IL: Addison Wesley, 2005) (“Carlton and Perloff”), at p. 126. See also Posner pp. 69 – 70.

²³¹ USDOJ, Antitrust Division, “Price Fixing, Bid Rigging, and Market Allocation Schemes: What They Are and What To Look For,” Feb. 2021, <https://www.justice.gov/atr/file/810261/download>, p. 5.

²³² Shane Miller Congressional Testimony; CARGILL000128427; CARGILL001801960; See backup production.

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Figure 21. Beef Processor Fed Cattle Market Share²³³



105. In addition to simply measuring market shares, one measure of industry concentration often used by economists and government enforcement agencies is the Herfindahl-Hirschman Index, or HHI.²³⁴ In a perfectly competitive market, which is an industry characterized by numerous firms, each with a negligible share of the market, the HHI tends towards the value of zero.²³⁵ At the opposite extreme, in an industry where there is only one supplier (*i.e.*, a pure monopoly), the HHI takes the value of 10,000.²³⁶ The DOJ considers markets with HHI between 1,000 and 1,800 to be “moderately concentrated” and markets with an HHI above 1,800 to be “highly concentrated.”²³⁷ Using fed cattle slaughter capacity as a proxy for actual production, I

²³³ CARGILL001275320, p. 10.

²³⁴ USDOJ, Antitrust Division, “Herfindahl-Hirschman Index,” USDOJ, updated January 17, 2024, <https://www.justice.gov/atr/herfindahl-hirschman-index>. See also Posner, pp. 69 – 70.

²³⁵ The HHI is calculated by squaring each firm’s market share and summing them up. So, if an industry has 10 firms that each hold 10% of the market, the HHI would be $(10^2 \times 10) = 1,000$. To see how the number of firms impacts an industry’s HHI, consider an industry that has 100 firms that each hold 1% of the market. The HHI would be $(1^2 \times 100) = 100$. For 200 firms that each hold 0.5% of the market, the HHI would be $(0.5^2 \times 200) = 25$. However, the situation changes considerably if the firms are not all equally sized. Suppose, for example, that there are 100 firms, but that three firms each control 30% of the market, and the remaining 97 control the other 10%. The HHI would be $(30^2 \times 3) + (0.103^2 \times 97) = 2,700 + 1.03 = 2,701$. In other words, a large number of small firms does not meaningfully reduce the concentration of a market. In fact, if all 97 fringe firms ceased to exist, and the remaining three split the remaining share equally, the HHI would only rise to 3,333.

²³⁶ With only one firm, the firm’s market share is 100%, and therefore the $HHI = 100^2 = 10,000$.

²³⁷ USDOJ, Antitrust Division, “Herfindahl-Hirschman Index,” USDOJ, updated January 17, 2024, <https://www.justice.gov/atr/herfindahl-hirschman-index>.

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estimated the HHI for the beef processing industry at several points during the Class Period. The estimated HHI typically falls around 2,000, indicating that the industry is “highly concentrated.” However, this measure does not account for collusion between Defendants. If the HHI is re-calculated during the Class Period to reflect collusion (*i.e.*, calculating the HHI as if all Defendants were a single entity), the HHI is over 7,000.²³⁸

106. Importantly, the Defendants’ dominance of the packing market has implications not only for the sustainability of a conspiracy, but for common impact. Because Defendants dominate the packing market, customers have minimal ability to avoid the impact of Defendants’ actions. This is particularly true given the way beef is priced through cutout values.

III.A.4. Barriers to Entry in the Beef Market Prevent any Competitive Restraint on Beef Products

107. In a well-functioning competitive market, supracompetitive price will induce new firms to enter the industry. Entry will continue until price returns to a competitive level. However, this process is hindered by “barriers to entry” that make the formation of a new firm more difficult. A common definition of a barrier to entry is, “a cost that must be incurred by a new entrant that incumbents do not (or have not had to) bear.” Barriers to entry make a conspiracy more likely to succeed, as it is harder for non-conspirators to enter the market bring prices back to competitive levels.²³⁹
108. The beef market exhibits significant barriers to entry. Consolidation has enabled large beef processors to achieve lower processing costs through economies of scale, which puts smaller beef processing plants at a significant competitive disadvantage and acts as a barrier for new entry. Economists who studied consolidation and concentration in U.S meat processing, noted that “Higher levels of concentration are often predicted to be associated with an increased

²³⁸ See backup production.

Another measure of concentration is the four-firm concentration or “CR-4” ratio, which measures the share of the market held by the four largest firms in an industry. In this case, the CR-4 ratio is the same as Defendants’ market share since Defendants have consistently been the largest 4 firms in the fed cattle processing industry. Their market share of at least 80% further demonstrates the high concentration of the market.

For the same reasons that a high market concentration in the beef packing industry facilitates collusion, so does an unconcentrated buying side of the market. Many buyers facilitate a competitive buying market and eliminate any monopsony power. See Posner at p. 75.

²³⁹ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 3rd ed. (Chicago, IL: Addison Wesley, 2005), at pp. 76-80. See also Posner at pp. 72 – 75.

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potential for firms to exercise market power” and that “increased concentration may enable firms to improve efficiency and achieve economies of scale.”²⁴⁰ The authors analyzed plant-level concentration and turnover and found that “On average between 1991-2021, new plant entries accounted for only 0.3% of annual, industry-wide cattle slaughter” while “plant closures accounted for only an average of 1.1% of industry production”, which indicate that “entry and exit (plant turnover) occurs overwhelmingly among the fringe of small plants.”²⁴¹ These low shares of industry production are indicative of the competitive disadvantage faced by small plants due to a lack of scale. For instance, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁴²

109. Regulatory costs and compliance suppress the entry of new processors and enhance the ability of the Defendants to manipulate the market. The House of Representatives Subcommittee on the Administrative State, Regulatory Reform, and Antitrust held a hearing on the regulatory barriers to entry and competition in meat processing, where in his opening statement Representative Massie described how “one-size-fits-all regulatory barriers entrench the largest meat processors and prevent small independent processors from competing effectively.”²⁴³ Representative Nadler suggested that “as we examine barriers to entry and competition in the meat processing industry, we should focus our attention on the key barrier to entry: Massive consolidation and concentration of power in just a handful of companies.”²⁴⁴ In that hearing, a

²⁴⁰ Saitone, T.L., Schaefer, K.A., Scheitrum, D. et al. “Consolidation and Concentration in U.S. Meat Processing: Updated Measures Using Plant-Level Data”. *Review of Industrial Organization* 64, 35–56 (2024). Available online at <https://www.usda.gov/sites/default/files/documents/schaefer-et-al-2023.pdf>.

²⁴¹ Saitone, T.L., Schaefer, K.A., Scheitrum, D. et al. “Consolidation and Concentration in U.S. Meat Processing: Updated Measures Using Plant-Level Data”. *Review of Industrial Organization* 64, 35–56 (2024), available at <https://www.usda.gov/sites/default/files/documents/schaefer-et-al-2023.pdf>.

²⁴² JBS-0000482954-JBS-0000482975 at 482963 and 482967.

²⁴³ Congress.gov, “Where’s The Beef? Regulatory Barriers to Entry and Competition in Meat Processing”, Hearing Before the Subcommittee on the Administrative State, Regulatory Reform, and Antitrust Committee, Committee of the Judiciary, U.S House of Representatives, June 13, 2023, available at <https://www.congress.gov/118/chr/CHRG-118hhr/52864/CHRG-118hhr/52864.pdf>.

²⁴⁴ Congress.gov, “Where’s The Beef? Regulatory Barriers to Entry and Competition in Meat Processing”, Hearing Before the Subcommittee on the Administrative State, Regulatory Reform, and Antitrust Committee, Committee

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co-owner of Honest Meats, LLC, a small Federally inspected meat producer, testified that “Inspection regulations are size prejudicial. I know one facility that was ordered closed because it wasn’t processing fast enough. The Food Safety Inspection Service measures efficiency by pounds inspected per personnel hours, creating an adversarial discriminatory attitude toward small plants.”²⁴⁵

110. Defendants make continual capital investments in order to comply with regulatory standards, maintain plant infrastructure and machinery, and to increase capacity. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁴⁶ [REDACTED]

[REDACTED]²⁴⁷ [REDACTED]

[REDACTED]

[REDACTED]²⁴⁸ [REDACTED]

[REDACTED] Therefore, in addition to the initial capital investment, entrants must be able to continue making significant investments in their operations to remain competitive. High upfront capital costs, such as the cost of land and new plants, as well as the costs of regulatory compliance further suggest that barriers to entry in the beef industry are high.

111. The existence of barriers to entry in the beef market was recognized by the Defendants and other beef processors. [REDACTED]

[REDACTED]

[REDACTED]²⁵⁰ [REDACTED]

of the Judiciary, U.S House of Representatives, June 13, 2023, *available at* <https://www.congress.gov/118/chr/CHRG-118hhr/52864/CHRG-118hhr/52864.pdf>.

²⁴⁵ Congress.gov, “Where’s The Beef? Regulatory Barriers to Entry and Competition in Meat Processing”, Hearing Before the Subcommittee on the Administrative State, Regulatory Reform, and Antitrust Committee, Committee of the Judiciary, U.S House of Representatives, June 13, 2023, *available at* <https://www.congress.gov/118/chr/CHRG-118hhr/52864/CHRG-118hhr/52864.pdf>.

²⁴⁶ [REDACTED]

²⁴⁷ [REDACTED]

²⁴⁸ NationalBeef-00955900-901 at 900.

²⁴⁹ 30(b)(1) Deposition of Shannon Grassl, April 25, 2024, p. 41

²⁵⁰ NationalBeef-00027002 at p. 5.

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[REDACTED]

[REDACTED] ²⁵¹ [REDACTED]

[REDACTED] ²⁵³ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ²⁵⁴ Such upfront obstacles,

and the long lag from conception to completion for plant construction, allow conspirators to earn supracompetitive profits for years before being challenged by new firms.

112. The existence of significant barriers to entry also implies that the alleged conspiracy would affect all or virtually all customers. Because of barriers to entry, would-be competitors are either unable or slow to increase production, competition, or put price pressure on Defendants. Indeed, despite Defendants’ record profits during the Class Period, it was not until after the Class Period that significant increases in beef processing began to be announced by non-Defendants.²⁵⁵

III.A.5. Defendants Had Similar Cost Structures and Production Processes

113. The more similar the firms in the market are with respect to their costs and their production methods, the easier it will be for them to collude.²⁵⁶ Defendants operated at the same level in the supply chain and faced similar costs due to the commodity-like nature of their inputs (cattle) and output (beef products).

114. [REDACTED]

[REDACTED]

[REDACTED] ²⁵⁷ [REDACTED]

²⁵¹ NationalBeef-00032505 at p. 14.

²⁵² JBS-0003168865 at p. 13.

²⁵³ JBS-0000374628 at 4629.

²⁵⁴ JBS-0002279648-740 at 665.

²⁵⁵ See James MacDonald, “*Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices*”, Jan. 25, 2024, p. 6-9, available at <https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices/> (noting that numerous new processing plants have been announced since 2021. These facilities are generally smaller, and appear to have also been assisted by government support provided specifically to increase competition in the packing industry.).

²⁵⁶ Posner at p. 77.

²⁵⁷ NationalBeef-00511886-7 at 7.

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]²⁵⁸ [REDACTED]

[REDACTED]

[REDACTED]²⁵⁹ [REDACTED]

[REDACTED]²⁶⁰ Firms decide how much to produce

based on the price of their output and their marginal cost. Marginal cost is the change in variable costs (the costs that change as the quantity produced changes) associated with the production of one additional unit of output.²⁶¹ By far the largest variable cost in beef production is cattle. On average, the cost of cattle accounted for around 93 percent of total variable costs across Defendants.²⁶² Furthermore, any differences in costs between Defendants are not likely to be passed-through to customers. Since beef is a homogenous good, producers must compete on price. Any firm that attempts to raise prices due to idiosyncratic costs will lose market share to a firm offering a lower price. Only costs that are common to all producers will impact market prices.

III.A.6. Defendants had Opportunities for Forming, Monitoring, and Enforcing Collusive Conduct

115. The creation and maintenance of a collusive scheme is facilitated when cartel members have opportunities to meet with each other to communicate, exchange information, and monitor each other’s activities. Similarly, a history of cooperation among firms in an industry can facilitate the formation and maintenance of a cartel agreement. Such cooperation may provide channels of communication, impart familiarity among the key decision makers, and lay the foundation for key relationships. Trade or industry organizations are a common format for such cooperation. Economic research recognizes that trade associations can be used to “overcome

²⁵⁸ NationalBeef-00511886-7 at 7.

²⁵⁹ NationalBeef-00511886-7 at 7.

²⁶⁰ NationalBeef-00511886-7 at 6.

²⁶¹ Pindyck R. and Rubinfeld D., *Microeconomics*, Eighth Edition, Pearson, 2013 at pp. 233-237.

²⁶² See backup production.

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the challenges of forming a cartel.”²⁶³ Defendants participated in several such organizations and related events, and there is evidence that Defendants used these events to coordinate behavior. As I discuss in more detail elsewhere in this report, documents show that National Beef made surprising and sudden changes to its slaughter plans and target market while Tim Klein (National’s CEO) was attending American Meat Institute meetings in Chicago in mid-2014.²⁶⁴

116. The National Cattlemen’s Beef Association (“NCBA”) is another industry organization that Defendants were involved with during the period in question. The NCBA hosted various meetings, and documents produced in this case indicate that Defendant personnel were frequently attendees (or at least received invitations to attend) and were often involved in leadership or advisory capacities together. For example, a July 2013 email from the NCBA’s CEO was sent to members of the NCBA’s “Beef Foresight Advisory Group,” which appears to have included (among others) Bill Rupp (JBS), Jim Lochner (Tyson), John Keating (Cargill), Terry Wilkerson and Art Wagner (NB).²⁶⁵ An email from March 2014 identifies NCBA Executive Committee member companies, including all four Defendants in this case.²⁶⁶ Another NCBA document appears to indicate that Defendants not only were involved in the NCBA, but had higher voting power and had coordinated their votes for committee leadership ahead of time.²⁶⁷
117. Similarly, an email from early 2014 indicates that several processors were invited to attend the NCBA convention in Nashville.²⁶⁸ The email chain includes Bill Thoni (Cargill), Cameron Bruett (JBS) Tracy Thomas (NB) Art Wagner (NB), and identifies how Defendants and other industry participants could “[REDACTED]”

²⁶³ Levenstein, M. and Suslow, V., “What Determines Cartel Success?” *Journal of Economic Literature*, Vol. XLIV, Mar. 2006, 86.

²⁶⁴ I discuss these changes in **Section III.B.4.a**.

²⁶⁵ NationalBeef-00333340-42 at 40.

²⁶⁶ JBS-0002478801.

²⁶⁷ TYSONBEEF00406029-33. At the bottom of the email there is a list of voting-eligible companies, and Cargill, JBS, National Beef and Tyson Fresh meats have two votes based on their membership investment level, while other listed companies have one. Regarding coordination, Steve Stouffer (Tyson) forwards the email to Sara Lilygren, (Tyson), asking, “Who casts the Tyson vote?” Lilygren is not sure, and adds Chuck Penry, and writes “I got National’s vote for Kevin.” “JBS says they’re with us.”

²⁶⁸ NationalBeef-00325456.

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Agribusiness Conference in early 2013, Tyson again publicly announced, “We run our plants for margin, not market share.”²⁷⁹ [REDACTED]

[REDACTED]²⁸⁰ Industry publications also amplified Tyson’s message, with Cattle Buyers Weekly reporting on Tyson Chief Operating Officer Jim Lochner’s comment at the conference about “margin not market share.”²⁸¹

121. [REDACTED]
[REDACTED]²⁸² [REDACTED]
[REDACTED]
[REDACTED]²⁸³

122. Documents show that Tyson was not alone in communicating its intentions. In January 2014, Plaintiffs allege [REDACTED]
[REDACTED]
[REDACTED]²⁸⁴ [REDACTED]
[REDACTED]
[REDACTED]²⁸⁵

123. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

124. [REDACTED]
[REDACTED]
[REDACTED]

²⁷⁹ NationalBeef-00335425-26 at 25.

²⁸⁰ JBS-0003230621-22 at 21; NationalBeef-00270070-71 (Timothy Klein Ex. 2026) at 70; JBS-0003247709-10 at 09.

²⁸¹ NationalBeef-00727819-23 at 21.

²⁸² CARGILL001945299-300 at 299.

²⁸³ *Id.*

²⁸⁴ CARGILL001327693 (Chandler Ex. 2144).

²⁸⁵ *Id.*

²⁸⁶ JBS-0002827403.

²⁸⁷ *Id.*

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[REDACTED]²⁸⁸ [REDACTED]
[REDACTED]

[REDACTED]²⁸⁹ As Tyson’s Dan Brooks testified, Tyson intentionally signaled its production plans to the other Defendants: “where strategically it would be to Tyson’s advantage if the market knew what Tyson’s future production plans were,” Tyson “may share some of that information” with “the market,” including competitors.²⁹⁰ According to Brooks, the “strategic purpose” for sharing Tyson’s future production information was to “change our margin picture” and benefit Tyson’s margin.²⁹¹

125. [REDACTED]
[REDACTED]²⁹² [REDACTED]
[REDACTED]
[REDACTED]²⁹³ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]²⁹⁴

126. Documents also show that Defendants issued press releases or otherwise spoke with media concerning their activities, such as plant closures.²⁹⁵ [REDACTED]
[REDACTED] An exchange between

²⁸⁸ JBS-0000645886-902 at 888.
²⁸⁹ CARGILL001933445-46 at 45.
²⁹⁰ Deposition of Dan Brooks, June 19, 2024, pp. 116-117; Deposition of Dan Brooks, June 19, 2024, pp. 119-120 (“[REDACTED]”).
²⁹¹ Deposition of Dan Brooks, June 19, 2024, p. 131.
²⁹² CARGILL000235112-13 at 12.
²⁹³ *Id.*
²⁹⁴ NationalBeef-00474570-71 at 70.
²⁹⁵ See, e.g., Burt Rutherford, “National Beef To Close Brawley Plant In Spite Of Efforts By Cattle Feeders,” Beef Magazine, February 24, 2014, available at <https://www.beefmagazine.com/cattle-market-outlook/national-beef-to-close-brawley-plant-in-spite-of-efforts-by-cattle-feeders> (noting National Beef’s public statements); “Tyson Foods to end beef production at Denison, Iowa plant,” Beef Magazine, August 16, 2015, <https://www.beefmagazine.com/cattle-market-outlook/tyson-foods-to-end-beef-production-at-denison-iowa-plant>. (noting Tyson’s public statements); Theopolis Waters and Christine Stebbins, “Cargill to shut Texas beef plant as cattle herd shrinks,” Reuters, January 17, 2013, available at <https://www.reuters.com/article/business/energy/cargill-to-shut-texas-beef-plant-as-cattle-herd-shrinks-idUSL1E9CHASC/> (noting Cargill’s public statements).
²⁹⁶ NationalBeef-00012513; NationalBeef-00266892; JBS-0000233320.

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Tyson’s Gary Mickelson and Theopolis Waters, Thompson Reuters reporter, shows Mickelson spreading the news of Tyson’s production restraint: “ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 297 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 299

III.A.6.a. Communication between Defendants

127. The existence and extent of inter-firm communications about pricing, current and future production, and supply is evidence relevant to an economist in evaluating the feasibility of firms engaging in anticompetitive behavior.³⁰⁰ Documents produced in this case show that Defendants were able to communicate with each other, and did so, on a frequent basis.

128. [REDACTED]

[REDACTED]

[REDACTED] 301 [REDACTED]

[REDACTED]

[REDACTED] 302 [REDACTED]

[REDACTED] 303 [REDACTED]

[REDACTED]

[REDACTED]

²⁹⁷ TYSONBEEF02080334-35 at 34.

²⁹⁸ *Id.*

²⁹⁹ JBS-0000426044.

³⁰⁰ I understand that Defendants have policies, guidelines, and training materials that are meant to ensure that employees’ communications with competitors (and other outside parties) are appropriate and within the bounds determined by competition laws and statutes. *See, e.g.*, CARGILL000001172-73 (Polzin Ex. 1322) at 72-73; National Beef-00251006-24 (Thomas Klein Ex. 1193) at 10, 19; TYSONBEEF00001002-11 (Chambers Ex. 1018) at 1004-1006; JBS-0000773560-66 at 62.

³⁰¹ JBS-0001313318-19 at 19.

³⁰² JBS-0000213217 (Byers Ex. 1360).

³⁰³ *Id.*

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³⁰⁵ [REDACTED]

[REDACTED]

[REDACTED] ³⁰⁶ [REDACTED]

[REDACTED] ³⁰⁷ [REDACTED]

[REDACTED]

[REDACTED] ³⁰⁸

[REDACTED]

[REDACTED] ³⁰⁹

129.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

130.

[REDACTED]

[REDACTED]

[REDACTED]

³⁰⁴ JBS-0000234136 (Rupp Ex. 2120).

³⁰⁵ *Id.*

³⁰⁶ *Id.*

³⁰⁷ *Id.*

³⁰⁸ JBS-0000530704 (Rupp Ex. 2121).

³⁰⁹ JBS-0000234135 (Rupp Ex. 2122).

³¹⁰ TYSONBEEF00335327 (Gerber Ex. 2426).

³¹¹ *Id.*

³¹² *JBS-0002827403.*

³¹³ TYSONBEEF00476366 (Kieffer Ex. 204).

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[REDACTED]

[REDACTED]

[REDACTED] ³¹⁴ [REDACTED]

[REDACTED] ³¹⁵

131. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³¹⁷ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³¹⁹ [REDACTED]

[REDACTED]

[REDACTED] ³²⁰ [REDACTED]

[REDACTED]

[REDACTED] ³²¹ [REDACTED]

[REDACTED]

[REDACTED] ³²² [REDACTED]

[REDACTED]

[REDACTED]

132. The flow of information between Defendants continued the next couple of months. [REDACTED]

[REDACTED]

³¹⁴ JBS-0001302439 (Williams Ex. 1720).
³¹⁵ *Id.*
³¹⁶ NationalBeef-00267770 (Timothy Klein Ex. 2040).
³¹⁷ CARGILL001383724 (Chandler Ex. 2146).
³¹⁸ TYSONBEEF01259274 (Kieffer Ex. 205).
³¹⁹ CARGILL001311979-80.
³²⁰ CARGILL000099841.
³²¹ JBS-0002516077 (Byers Ex. 1371).
³²² *Id.*
³²³ Deposition of Al Byers, June 26, 2024, pp. 180-181.

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[REDACTED]

133.

[REDACTED]

³²⁴ CARGILL000103792 (Wilkerson Ex. 1914).

³²⁵ Wilkerson Exhibit 1913, p. 11.

³²⁶ Wilkerson Exhibit 1913, p. 12.

³²⁷ Deposition of Terry Wilkerson, July 26, 2024, p. 83.

³²⁸ See CARGILL000103792 (Wilkerson Ex. 1914).

³²⁹ Deposition of Terry Wilkerson, July 26, 2024, pp. 75-77.

³³⁰ Deposition of Terry Wilkerson, July 26, 2024, pp. 79-80.

³³¹ NationalBeef-00304110 (Guettermann Ex. 295).

³³² Deposition of Eric Guettermann, Mar. 21, 2024, pp. 141, 156-159; Deposition of Thomas Klein, June 18, 2024, pp. 71-97; NationalBeef-00437020-21 (Thomas Klein Ex. 1176); NationalBeef-01232462-66 (Thomas Klein Ex. 1177).

³³³ Deposition of Eric Guettermann, Mar. 21, 2024, p. 141:21-24.

³³⁴ Deposition of Eric Guettermann, Mar. 21, 2024, pp. 134-136.

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136. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 342 [REDACTED]
[REDACTED]
[REDACTED] 343 [REDACTED]
[REDACTED]
[REDACTED] 344

137. [REDACTED]
[REDACTED]
[REDACTED] 346 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

138. A [REDACTED]
[REDACTED]
[REDACTED] 348 [REDACTED]
[REDACTED] 349 [REDACTED]
[REDACTED] 350 [REDACTED]
[REDACTED]

³⁴² JBS-0001302452; Deposition of John Keating (Day 1), September 4, 2024, pp. 244-247.
³⁴³ JBS-0000235177; [REDACTED].” Deposition of Bill Rupp, August 19, 2024, p. 114. [REDACTED] (Deposition of Bill Rupp, August 19, 2024, pp. 115-118).
³⁴⁴ CARGILL000516475; *See also* CARGILL000516472 and CARGILL000516474 [REDACTED] [REDACTED]; Deposition of John Keating (Day 1), September 4, 2024, pp. 270-278.
³⁴⁵ TYSONBEEF01681197 (Kieffer Ex. 209).
³⁴⁶ [REDACTED]
³⁴⁷ TYSONBEEF01554135 (Kieffer Ex. 201).
³⁴⁸ CARGILL000185635-67 (Gillig Ex. 1047).
³⁴⁹ CARGILL000185635-67 (Gillig Ex. 1047) at 39.
³⁵⁰ CARGILL000185635-67 (Gillig Ex. 1047) at 41.

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[REDACTED] ³⁵¹ [REDACTED]

[REDACTED] ³⁵² [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³⁵³

139.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³⁵⁴

140.

[REDACTED]

[REDACTED] ³⁵⁵ [REDACTED]

[REDACTED]

[REDACTED] ³⁵⁶

141.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ³⁵⁷ [REDACTED]

[REDACTED] ³⁵⁸ [REDACTED]

³⁵¹ CARGILL000185635-67 (Gillig Ex. 1047) at 53.

³⁵² CARGILL000185635-67 (Gillig Ex. 1047) at 57-58.

³⁵³ See JBS-0000894492; JBS-0000894493-511.

³⁵⁴ TYSONBEEF00634447.

³⁵⁵ JBS-0000503145.

³⁵⁶ *Id.*

³⁵⁷ TYSONBEEF01340139-40 (Kathol Ex. 343).

³⁵⁸ *Id.* at 39.

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[REDACTED]³⁵⁹ [REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]³⁶⁰ The next week, Jerry Holbrook emailed senior staff on Tyson’s sales team and instructed, “Let me know if you hear any rumors of competitive hours. General feeling that we’re probably more willing to run a reduced schedule than others.”³⁶¹

142.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]³⁶² [REDACTED]
[REDACTED]³⁶³ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]³⁶⁴

143.

[REDACTED]
[REDACTED]
[REDACTED]³⁶⁵ [REDACTED]
[REDACTED]
[REDACTED]³⁶⁶

144.

[REDACTED]
[REDACTED]
[REDACTED]

³⁵⁹ TYSONBEEF01656888-89 at 88.

³⁶⁰ TYSONBEEF00428026 (Brooks Ex. 1254).

³⁶¹ TYSONBEEF00465670 (Holbrook Ex. 261).

³⁶² JBS-0000167217 (Byers Ex. 1378).

³⁶³ *Id.*

³⁶⁴ TYSONBEEF02071529-30 at 29.

³⁶⁵ TYSONBEEF02158474 (Kriese Ex. 72).

³⁶⁶ JBS-0002050230-31 at 30.

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[REDACTED]

[REDACTED]

[REDACTED] 369

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

145.

[REDACTED]

[REDACTED]

[REDACTED]

146.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

147.

[REDACTED]

[REDACTED]

[REDACTED]

³⁶⁷ CARGILL001290327-30 (Chandler Ex. 2149) at 30.

³⁶⁸ Rupp, Bill. LinkedIn. Accessed September 24, 2024. <https://www.linkedin.com/in/brupp/>.

³⁶⁹ JBS-0000773560-66 at 62.

³⁷⁰ CARGILL001290327-30 (Chandler Ex. 2149) at 27-29.

³⁷¹ Deposition of Bill Chandler, August 21, 2024, p. 96.

³⁷² CARGILL001290327-30.

³⁷³ NationalBeef-01101344 (Sweeney Ex. 570).

³⁷⁴ NationalBeef-01695856.

³⁷⁵ JBS-0000628792-94 at 92.

³⁷⁶ TYSONBEEF01617493 (Kieffer Ex. 202).

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[REDACTED]

148.

[REDACTED]

149.

[REDACTED]

³⁷⁷ *Id.*

³⁷⁸ TYSONBEEF01212133 (Kieffer Ex. 216).

³⁷⁹ *Id.*

³⁸⁰ NationalBeef-00423383.

³⁸¹ NationalBeef-00425723.

³⁸² Exhibit 1913, Terry Wilkerson Rule 1006 Exhibit.

³⁸³ *Id.*

³⁸⁴ *Id.*

³⁸⁵ *Id.*

³⁸⁶ *Id.*

³⁸⁷ NationalBeef-00423383; Exhibit 1913, Terry Wilkerson Rule 1006 Exhibit.

³⁸⁸ Exhibit 1913, Terry Wilkerson Rule 1006 Exhibit.

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150. [REDACTED]
[REDACTED] 389
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 390

151. [REDACTED]
[REDACTED]
[REDACTED] 391 [REDACTED]
[REDACTED]
[REDACTED]

152. [REDACTED]
[REDACTED] 392 [REDACTED]
[REDACTED]
[REDACTED] 393 [REDACTED]
[REDACTED]
[REDACTED] 395 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 396 [REDACTED]
[REDACTED] 397

153. [REDACTED]
[REDACTED]

³⁸⁹ NationalBeef-00072619–20 (Wilkerson Ex. 1919).

³⁹⁰ NationalBeef-01743270.

³⁹¹ CARGILL000517295 (Keating Ex. 2465).

³⁹² JBS-0002461510-11 (Byers Ex. 1380).

³⁹³ *Id.* at 10.

³⁹⁴ *Id.*

³⁹⁵ *Id.*

³⁹⁶ *Id.*

³⁹⁷ *Id.*

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[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 400 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 401

154.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 403

155.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 404

156.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

³⁹⁸ NationalBeef-00091538 (Lowe Ex. 1754).

³⁹⁹ TYSONBEEF00304735 (Kieffer Ex. 213).

⁴⁰⁰ JBS-0001336921.

⁴⁰¹ CARGILL000525877.

⁴⁰² NationalBeef-00087725 (Wilkerson Ex. 1917); Wilkerson Ex. 1918 (metadata for Ex. 1917).

⁴⁰³ Deposition of Terry Wilkerson, July 26, 2024, pp. 154-155.

⁴⁰⁴ JBS-0000179060.

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[REDACTED]

157. In addition to communications related to beef and cattle matters, documents indicate that Defendants also communicated on a more personal or social level at times. [REDACTED]

[REDACTED]

158. [REDACTED]

⁴⁰⁵ CARGILL000834892-93 at 92.

⁴⁰⁶ See NationalBeef-00618048-50 at 50.

⁴⁰⁷ NationalBeef-00267434; see also NationalBeef-00267328 (planning meeting).

⁴⁰⁸ NationalBeef-00267434.

⁴⁰⁹ NationalBeef-00267328.

⁴¹⁰ Deposition of Timothy Klein, August 7, 2024 pp. 71-72.

⁴¹¹ NationalBeef-00001603 (Timothy Klein Ex. 2035) at pg. 3.

⁴¹² NationalBeef-00266890 (Timothy Klein Ex. 2032) at pg. 2.

⁴¹³ NationalBeef-00266890 (Timothy Klein Ex. 2032).

⁴¹⁴ NationalBeef-00266890 (Timothy Klein Ex. 2032).

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Beef announced the closure of its Brawley plant.⁴¹⁵ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁴¹⁶ [REDACTED]
[REDACTED]

159. It is not my opinion that all instances of Defendants meeting or communicating with each other are necessarily anticompetitive or without legitimate business purposes. Rather, these examples serve to demonstrate that Defendants had access to each other, and used that access at times to meet and discuss. Such access and relationships allow for participants in a cartel to more easily reach agreement, monitor one another, and otherwise maintain the alleged conspiracy.

III.A.6.b. Use of Intermediaries

160. Documents indicate that Defendants frequently communicated with each other through industry analysts, experts, and commentators.⁴¹⁸ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁴¹⁹ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁴²⁰

⁴¹⁵ NationalBeef-00266890 (Timothy Klein Ex. 2032).

⁴¹⁶ NationalBeef-00012513.

⁴¹⁷ JBS-0000150053; NationalBeef-00267722; JBS-0000148739.

⁴¹⁸ I understand that Defendants have policies that are meant to govern how employees interact with third parties to ensure compliance with competition laws. *See, e.g.*, CARGILL000001172-73 (Polzin Ex. 1322) at 73; National Beef-00251006-24 (Thomas Klein Ex. 1193) at 19, 22; TYSONBEEF00001002-11 (Chambers Ex. 1018) at 1005-06; JBS-0000773560-66 at 62.

⁴¹⁹ [REDACTED]

⁴²⁰ NationalBeef-01697714 (Lowe Ex. 1763).

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161. [REDACTED]

162. [REDACTED] 423 [REDACTED]

163. [REDACTED] 427 [REDACTED]

[REDACTED] 428 [REDACTED]

[REDACTED] 429 [REDACTED]

[REDACTED] 430 [REDACTED]

164. [REDACTED]

⁴²¹ JBS-0000503327.

⁴²² TYSONBEEF00475650-54 (Kieffer Ex. 210) at 50; TYSONBEEF01352488-89 (Kieffer Ex. 212) at 88.

⁴²³ TYSONBEEF00475650-54 (Kieffer Ex. 210) at 50.

⁴²⁴ TYSONBEEF01259177 (Kieffer Ex. 211).

⁴²⁵ Deposition of Donald Kieffer, Mar. 21, 2024, p. 123; *See* TYSONBEEF00475650-54 (Kieffer Ex. 210) at 50; Deposition of Donald Kieffer, Mar. 21, 2024, pp. 136-137.

⁴²⁶ Deposition of Donald Kieffer, Mar. 21, 2024, pp. 135-136.

⁴²⁷ [REDACTED]

⁴²⁸ [REDACTED]

⁴²⁹ *Id.*

⁴³⁰ *Id.*

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[REDACTED]

[REDACTED]⁴³¹

165.

[REDACTED]

[REDACTED]⁴³²

[REDACTED]

[REDACTED]⁴³³

166.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

167.

[REDACTED]

[REDACTED]

[REDACTED]⁴³⁵

⁴³¹ NationalBeef-00511888-89.

⁴³² NationalBeef-00403810-11 at 10 (Timothy Klein Ex. 2046).

⁴³³ NationalBeef-00403810-11 at 10 (Timothy Klein Ex. 2046).

⁴³⁴ NationalBeef-00419894 (Lowe Ex. 1788).

⁴³⁵ [REDACTED]

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168. [REDACTED] 436 [REDACTED]
[REDACTED] 437

169. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

170. [REDACTED] 441
[REDACTED] 442 [REDACTED]
[REDACTED] 443 [REDACTED] 444 [REDACTED]
[REDACTED]
[REDACTED] 445 [REDACTED]
[REDACTED] 446 [REDACTED]
[REDACTED]
[REDACTED] 447 [REDACTED]
[REDACTED]

436 [REDACTED]

437 JBS-0000628792-94 at 92.

438 NationalBeef-00222732.

439 *Id.*

440 NationalBeef-00222732 (Lowe Ex. 1786).

441 [REDACTED]

442 *Id.*

443 [REDACTED]

444 [REDACTED]

445 *Id.*

446 NationalBeef-00557871 (Lowe Ex. 1756); Deposition of Monte Lowe, July 18, 2024, pp. 63-64.

447 *Id.*

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[REDACTED]
[REDACTED]
[REDACTED] 448

171.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

172.

[REDACTED] 452
[REDACTED] 453

173.

[REDACTED]
[REDACTED]
[REDACTED] 454

174.

[REDACTED]
[REDACTED]
[REDACTED] 455
[REDACTED] 456

175.

[REDACTED]
[REDACTED]
[REDACTED] 457
[REDACTED]
[REDACTED]

⁴⁴⁸ *Id.*

⁴⁴⁹ NationalBeef-00423383 (Wilkerson Ex. 1915).

⁴⁵⁰ *Id.*

⁴⁵¹ *Id.*

⁴⁵² [REDACTED]

⁴⁵³ *Id.*

⁴⁵⁴ NationalBeef-00474570-71 at 70.

⁴⁵⁵ NationalBeef-00221897-98 at 97.

⁴⁵⁶ NationalBeef-00221897-98 at 97.

⁴⁵⁷ NationalBeef-00474225-26 at 25.

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[REDACTED] 458 [REDACTED]
[REDACTED]

[REDACTED] 459

176.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

177.

[REDACTED] 462 [REDACTED]
[REDACTED] 463 [REDACTED]
[REDACTED]
[REDACTED] 464

178.

[REDACTED]
[REDACTED]
[REDACTED] 465 [REDACTED]
[REDACTED] 466

179.

[REDACTED]
[REDACTED]
[REDACTED] 467 [REDACTED] 468 These types of third-

⁴⁵⁸ *Id.*

⁴⁵⁹ NationalBeef-00434384.

⁴⁶⁰ NationalBeef-00417105-106 at 105.

⁴⁶¹ NationalBeef-00417107 (Lowe Ex. 1802).

⁴⁶² [REDACTED]

⁴⁶³ *Id.*

⁴⁶⁴ *Id.*

⁴⁶⁵ JBS-0001305657-58 at 57.

⁴⁶⁶ *See id.*

⁴⁶⁷ NationalBeef-00597340.

⁴⁶⁸ *Id.*

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party information exchanges about Defendants’ kill cuts facilitate Defendants’ restraint of their relative kills.

III.B. Defendants’ Actions Are Consistent with the Alleged Conspiracy

180. In the sections below, I first provide an overview of the alleged conspiracy in this case, including the alleged mechanisms and methods utilized by Defendants to allocate market shares, reduce competition, artificially raise or maintain prices, and increase profits. I then discuss more specific examples of the alleged methods and actions, and alleged documentary evidence, before addressing measurement of the impact of the alleged conspiracy.

III.B.1. Overview of the Alleged Conspiracy

181. I understand that Plaintiffs have alleged that Defendants conspired to collectively change the ways in which they operate for the purpose of increasing their profits related to sales of beef. Plaintiffs have alleged that Defendants conspired to reduce beef slaughter capacity and reduce their competition for fed cattle, which translated in the near- and long-term into reduced production of beef and artificially inflated beef prices for consumers. After providing an overview of the allegations, I detail the specifics of the alleged evidentiary support in the following sections.

182. I understand that Plaintiffs have alleged that the building blocks of the conspiracy began prior to the Class Period itself with the reduction of industry capacity and a shift in production strategy that favored “margin over market share” to stabilize the amount of beef available for sale at retail operations. [REDACTED]

[REDACTED] That is, by collectively reducing their demand for, and slaughter of, fed cattle, Defendants inflated their margin by simultaneously creating artificial scarcity in the boxed beef market (which leads to higher beef prices) and lowered their fed cattle input costs. [REDACTED]

⁴⁶⁹ JBS-0000167217 (Byers Ex. 1378).

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reducing long-term growth in the cattle supply. Thus, by signaling a reduction in the competitive forces that generate rancher margins in 2013-2014, Defendants planted the seed for lower overall cattle supplies several years later (due to the long breeding, gestation, and growth terms for fed cattle). In this way, Defendants’ actions early in the Class Period (or just before it) could lead to sustained impact throughout the Class Period.

186. In addition to reducing slaughter and processing capacity, documents also indicate a shift in how Defendants managed their slaughter of fed cattle. [REDACTED]

[REDACTED]⁴⁷³ To do this, Defendants routinely “pulled kills” from their slaughter plans to reduce the volume of beef entering the marketplace and provide support for (*i.e.*, increase) the cutout prices. Reductions to kills were effectuated through multiple means, including reducing hours, eliminating (or limiting) Saturday shifts, reducing chain speeds, and implementing unplanned maintenance or upkeep operations. Importantly, as I discuss in sections below, there is substantial alleged evidence that Defendants routinely communicated and confirmed these decisions with other Defendants, either by notifying them directly or through industry conduits who could be relied on to convey (and reciprocate) sharing of competitively sensitive information.

187. [REDACTED]⁴⁷⁴ Documents show that, in addition to ongoing coordination of kill cuts and other production decisions, Defendants emphasized “target” market shares that were based on their allegedly agreed-upon share of industry

concentration in the meatpacking industry, MacDonald wrote: “Lower production costs did translate into lower consumer prices, increased consumption, and higher prices for cattle and hogs.” However, the increased consumption and lower prices only come about if supply adjusts. By removing capacity (and actively working to prevent any more from coming online), Defendants limited the ability (and incentives) for expanded supply.)

⁴⁷³ [REDACTED] See JBS-0001475795; JBS-0001156042; and JBS-0001313337.

⁴⁷⁴ JBS-0001156042 [REDACTED] See JBS-0001313337.

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capacity.⁴⁷⁵ Conceptually, relying on target market shares could solve a problem that Defendants had struggled with historically. Specifically, documents indicate that the beef packing industry was characterized by low margins due to by Defendants’ continual pursuit of market share.⁴⁷⁶ As explained by Pindyck and Rubinfeld, in an oligopolistic setting, a small number of firms try to achieve outcomes that are superior to those that would prevail through competition. However, such efforts are a) very difficult to coordinate and b) very difficult to sustain.⁴⁷⁷

“Take, for example, an industry made up of three or four firms that have coexisted for a long time. Over the years, the managers of those firms might grow tired of losing money because of price wars, and an implicit understanding might arise by which all the firms maintain high prices and no firm tries to take market share from its competitors. Although each firm might be tempted to undercut its competitors, its managers know that the resulting gains will be short-lived: Competitors will retaliate, and the result will be renewed warfare and lower profits over the long run.

This resolution of the prisoners’ dilemma occurs in some industries, but not in others. Sometimes managers are not content with the moderately high profits resulting from implicit collusion and prefer to compete aggressively in order to increase market share. Sometimes implicit understandings are difficult to reach. For example, firms with different costs and different assessments of market demand might disagree about the ‘correct’ collusive price. *Firm A* might think the ‘correct’ price is \$10, while *Firm B* thinks it is \$9. When it sets a \$9 price, *Firm A* might view this as an attempt to undercut and retaliate by lowering its price to \$8. The result is a price war.

In many industries, therefore, implicit collusion is short lived. There is often a fundamental layer of mistrust, so warfare erupts as soon as one firm is perceived by its competitors to be ‘rocking the boat’ by changing its price or increasing advertising.”

188. While the example above references prices, the same concepts hold true for output decisions. The adoption of target market shares based on an approximation of each Defendants’ share of actual capacity not only resolves the problem of “different understandings,” but it also provides a clear mechanism for each member of the alleged conspiracy to monitor and enforce the agreement. Using these target market shares, augmented with the exchange of competitively

⁴⁷⁵ CARGILL000623055; TYSONBEEF00315970; TYSONBEEF00239693; JBS-0000041771 (Holloway Ex. 635); CARGILL001291236; NationalBeef-00002144 at p. 10; NationalBeef-00361041; NationalBeef-01396517-544 at 527; NationalBeef-00002202.

⁴⁷⁶ NationalBeef-00298398 [REDACTED].

⁴⁷⁷ Pindyck R. and Rubinfeld D., *Microeconomics*, Eighth Edition, Pearson 2013, at p. 472.

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sensitive information, Defendants could signal their own production, predict each competitor’s production, and operate with the knowledge that any deviation from the agreement would be immediately discovered and reacted to (*e.g.*, punished). [REDACTED]

[REDACTED]

478

189. The difficulty of reaching an agreement described by Pindyck and Rubinfeld—even in the face of a common, repeated “game” that plays out year after year, month after month—is evident

[REDACTED]

[REDACTED]⁴⁷⁹) and his subsequent testimony about the industry’s collective reduction in output in mid-2015. [REDACTED]

[REDACTED]

[REDACTED]⁴⁸⁰ Of course, as I discuss elsewhere, there is evidence that the “tea leaves” and “economic signals” included Defendant communications about slaughter intentions.⁴⁸¹ Combined with output restraints like capacity reductions (*i.e.*, plant closures) and maintained capacity restriction, the use of market share targets also addresses the issue of sustaining an agreement over the longer term. First, it allows each Defendant’s total output to change in accordance with fluctuations in the cattle cycle and seasonal fluctuations; second, it inhibits the potential for overstepping production (because plants eventually reach maximum capacity).

190. In the sections that follow, I discuss alleged evidence that Defendants reduced capacity and, more importantly, inhibited future growth in capacity. I also discuss evidence that, within that reduced-capacity environment, Defendants restrained supply by holding back slaughter—even

⁴⁷⁸ [REDACTED]

NationalBeef-00002095-96 at 95.

⁴⁷⁹ JBS-0000167217.

⁴⁸⁰ Deposition of Al Byers, June 26, 2024, p. 237.

⁴⁸¹ See **Section III.B.5**.

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when it would be profitable to expand it—in order to stay within the bounds of their target market shares. Lastly, I also discuss evidence that, by mid-2015 and 2016, Defendants’ allegedly coordinated actions had caught the attention of industry commentators, who recognized a change in the leverage Defendants held over the upstream and downstream markets and the resulting historically high profits Defendants enjoyed.

III.B.2. *Alleged Coordinated Decisions to Reduce Industry Capacity and Beef Slaughter During the Class Period*

191. Prior to the Class Period, and continuing throughout the Class Period, Defendants made a series of plant closures, idling of plants, and restrictive deed covenants on facilities which resulted in long-term removal of capacity from the beef market. Plaintiffs allege that these actions were coordinated, and with the intent of reducing supply for the industry. By shuttering existing facilities, abandoning plans to shift production lost from a plant closure, or otherwise reducing the throughput capabilities of existing plants, Defendants can reduce their largest input cost: the price of cattle. While this increases Defendants’ margins, it also reduces the economic incentives of upstream suppliers to expand cattle production, which leads to longer-term reductions in the supply of beef. These closures were accompanied by reductions in slaughter, which will result in a reduction in the fabrication of beef, thereby restraining the amount of beef on the market and raising prices paid by consumers. These plant closures can be seen as permanent adjustments to a temporary problem (the downturn in the cattle cycle), and the Defendants’ idling of beef processing facilities, refusal to sell, and implementation of deed restrictions continued a restraint in the market rather than allowing a rational response to changing market conditions.
192. As I discuss in the sections below, alleged evidence suggests that Defendants closed (or kept idle) numerous cattle slaughter and beef processing plants immediately prior to and during the Class Period, and then continued to take actions to keep the slaughter capacity out of the market such as entering into deed restrictions precluding the use of idled factories as beef processing facilities.

*Confidential – Attorneys’ Eyes Only***III.B.2.a. Reductions In Capacity through Plant Closures or Deed Restrictions Can Be Anticompetitive.**

193. The removal of capacity from the market in a permanent way can be anticompetitive. For example, closing a plant may be a drastic measure if it is a permanent solution to a temporary problem. Defendants recognized this.⁴⁸² There are numerous ways in which closing a plant may hurt a firm. For example, in a competitive market place, with a plant closure, competitors gain market share, long-term customer relationships are damaged, the company’s brand reputation suffers due to the inability to satisfy contracts, skilled laborers are laid off and are difficult to re-hire, there is a significant impact on the company’s profits and losses, specialized plant machinery and other assets are sold, and it can be difficult, time consuming, and costly to open a new plant later.
194. Similarly, deed restrictions which remove a plant from the industry can be anticompetitive, as they prevent entry by competitors and serve to restrain supply. I understand that the DOJ has found that in at least one instance, the use of restrictive covenants to remove production capacity by a group of mushroom farms was anticompetitive. In *United States v. Eastern Mushroom Marketing Cooperative, Inc.*,⁴⁸³ the DOJ brought suit against a cooperative of mushroom growers in the eastern United States accounting for over 60 percent of mushroom sales. After formation in 2001, the cooperative spent about \$3 million purchasing mushroom farms and selling them at a loss with deed restrictions that eliminated the right to grow mushrooms on those farms for a period of ten years. Approximately 8 percent of the total capacity of the industry was removed as a result of the deed restrictions placed on the six purchased mushroom farms.⁴⁸⁴ The mushroom cooperative consented to a final judgment, the “essence” of which was “the prompt and certain nullification of certain deed restrictions that limit mushroom production.”⁴⁸⁵ In this case, it is alleged Defendants not only made significant

⁴⁸² See CARGILL000102739 at p. 63.

⁴⁸³ *United States v. Eastern Mushroom Marketing Cooperative, Inc.*, Case No. 2:04-cv-05829 (E.D. Penn.), Complaint. available at: <https://www.justice.gov/atr/case-document/file/494596/dl> (last visited Sept. 11, 2024).

⁴⁸⁴ *United States v. Eastern Mushroom Marketing Cooperative, Inc.*, Case No. 2:04-cv-05829 (E.D. Penn.), Compl., ¶ 26.

⁴⁸⁵ *United States v. Eastern Mushroom Marketing Cooperative, Inc.*, Case No. 2:04-cv-05829 (E.D. Penn.), Final Judgment at 1. Available at <https://www.justice.gov/atr/case-document/file/494536/dl> (last visited Sept. 11, 2024).

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reductions to capacity, they held that capacity out of reach from would-be competitors who could have acted to increase competition and the supply of beef.

III.B.2.b. *The Beef Processors, Facing Challenging Market Conditions, Allegedly Took Measures to Limit Slaughter Capacity by Closing Plants and Ensured the Plants Stayed Closed Through Restrictive Deeds*

195. From 2010 to 2012, Beef Processors faced a period of low cattle supply, with negative margins in 2012 as a result.⁴⁸⁶ By mid-2013, the drought had ended, and forage availability had increased to above-average levels in cow-calf producing regions.⁴⁸⁷ Margins, while still negative, started rebounding in 2013. Producers were already increasing their retention of heifers for breeding, rather than sending them to feedlots for slaughter, signaling a gradual rise in the slaughter weight of fed cattle that the industry would begin to see from 2016 onwards.⁴⁸⁸ Alleged evidence indicates that Defendants were aware of the anticipated rebuild of the beef cattle herd, as they regularly promote their insight into future supply numbers.⁴⁸⁹ Despite this expected increase in the cattle herd and years of healthy margins, Defendants continued to close facilities and implement restrictions on future capacity growth.

III.B.2.c. *Cargill Closes Its Plainview, Texas Plant in 2013, Idles the Facility, and in 2016, Places a Restrictive Covenant on it to Ensure Its Permanent Removal as a Beef Slaughter Facility*

196. Cargill announced the closure of its Plainview, Texas slaughter plant on January 17, 2013. [REDACTED]

[REDACTED]

[REDACTED] 490 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁴⁸⁶ NationalBeef-00551887; JBS-0001151279.

⁴⁸⁷ NationalBeef-00353523 at 26; JBS-0002341299.

⁴⁸⁸ TYSONBEEF03325175.

⁴⁸⁹ TYSONBEEF00319186; TYSONBEEF01746977; JBS-0002278907; JBS-0002278596 at 98; CARGILL000435270 at 71; NationalBeef-00062140.

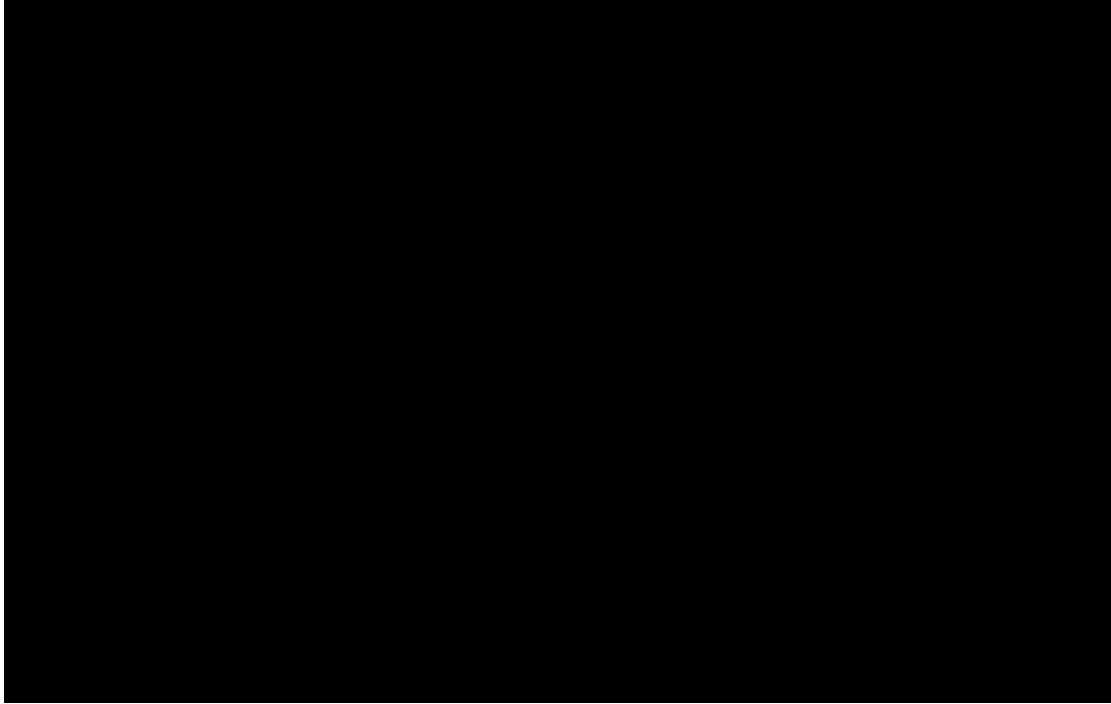
⁴⁹⁰ [REDACTED] See CARGILL000102739 at p. 52; CARGILL000128427 [REDACTED]

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[REDACTED]

.491

Figure 22. Impact of Emporia Plant Closure on Meat Margin⁴⁹²



197.

[REDACTED]

493

494

495

⁴⁹¹ CARGILL000102739 at p. 44.

⁴⁹² CARGILL000102739 at p. 44.

⁴⁹³ See also CARGILL000102739 at p. 2 [REDACTED] (emphasis added).

⁴⁹⁴ CARGILL000100037-38 (Carlgen Ex. 1542) at 37 (emphasis added).

⁴⁹⁵ *Id.*; CARGILL000102739 at p. 63.

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[REDACTED]

[REDACTED] ⁴⁹⁶ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁴⁹⁸

198.

[REDACTED]

[REDACTED] ⁴⁹⁹ [REDACTED]

[REDACTED]

[REDACTED] ⁵⁰⁰ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁵⁰¹

To assure its co-conspirators that the sale would not increase industry packing capacity, Cargill seemingly ensured that word got out about the restrictive covenant. [REDACTED]

The message was also relayed to Simon McGee, CFO of National Beef.⁵⁰³ The Plainview plant was ultimately sold with the five-year deed restriction in place.⁵⁰⁴

199.

[REDACTED]

[REDACTED]

⁴⁹⁶ CARGILL000102739 at p. 70.

⁴⁹⁷ CARGILL000102739 at p. 70.

⁴⁹⁸ CARGILL000102739 at p. 70.

⁴⁹⁹ CARGILL001929460-64 at 63.

⁵⁰⁰ CARGILL001929460-64 at 63.

⁵⁰¹ CARGILL001913660-61 at 60 (emphasis added).

⁵⁰² TYSONBEEF01252033.

⁵⁰³ NationalBeef-00057192 (McGee Ex. 1611); NationalBeef-00057224; NationalBeef-00057195; NationalBeef-00057229; NationalBeef-00057230.

⁵⁰⁴ Deposition of Randy Carlgren, July 10, 2024, Exhibit 1547 (Special Warranty Deed dated November 9, 2017).

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[REDACTED]
[REDACTED]⁵⁰⁵ [REDACTED]
[REDACTED]⁵⁰⁶

III.B.2.d. In 2013, JBS Acquires a Nampa, Idaho Plant but Leaves It Idle Throughout the Class Period

200. On the day of the Plainview closure, Bob Chudy of CTI Foods emailed with Steve Stouffer, Senior Vice President of Beef Margin Management for Tyson, and remarked that “[REDACTED]”⁵⁰⁷ Mr. Stouffer responded, “[REDACTED]”
[REDACTED] Mr. Chudy replied, “[REDACTED]”⁵⁰⁸

201. Just a few months later, JBS made a move to further restrain industry capacity. On April 8, 2013, JBS purchased an existing slaughter facility located in Nampa, Idaho with a capacity of 1,100 head per day from XL Foods. At the time of the purchase, JBS made it clear that it had “no immediate plans to reopen the facility.”⁵⁰⁹ While not immediately running the plant at speed may have been reasonable at the time of the purchase, given the phase of the cattle cycle (the liquidation phase of the cattle cycle was reaching its end⁵¹⁰), [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁵¹¹ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁵¹² [REDACTED]
[REDACTED]
[REDACTED]

⁵⁰⁵ CARGILL000099292 (Keating Ex. 2433).

⁵⁰⁶ CARGILL000099292 (Keating Ex. 2433).

⁵⁰⁷ TYSONBEEF00404429.

⁵⁰⁸ TYSONBEEF00404429.

⁵⁰⁹ JBS-0002652085-86 at 85-86.

⁵¹⁰ As shown previously in **Figure 19**, the cattle cycle was still in its liquidation phase until the start of 2014.

⁵¹¹ JBS-0001318435-36.

⁵¹² JBS-0001318435-36. at 36.

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[REDACTED] 513 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 514
202. [REDACTED]
[REDACTED]
[REDACTED] 515 [REDACTED]
[REDACTED]
[REDACTED] 516 [REDACTED]
[REDACTED] 517 [REDACTED]
[REDACTED] 518 [REDACTED]
[REDACTED]
[REDACTED] 519 [REDACTED]
[REDACTED] 520 [REDACTED]
[REDACTED]
[REDACTED]

III.B.2.e. National Beef Closes Its Brawley, California Plant in 2014, Refuses to Publicly Disclose It Is for Sale, and Sells It to a Company with a History of Failing to Successfully Operate the Plant

203. Other plant closures followed the idling of the Nampa facility, including the closure of National Beef’s Brawley, California plant in May 2014.⁵²¹ When it closed, Brawley’s slaughter capacity was [REDACTED] head per day, which amounted to a reduction of about [REDACTED] percent of industry-wide

⁵¹³ JBS-0001318435-36. (emphasis added).

⁵¹⁴ JBS-0001318435-36.

⁵¹⁵ JBS-0002188917-18 at 18.

⁵¹⁶ See JBS-0002188917-18 at 18.

⁵¹⁷ JBS-0002188917-18 at 17.

⁵¹⁸ JBS-0002188917-18 at 18.

⁵¹⁹ See JBS-0002188917-18 at 18.

⁵²⁰ JBS-0002188917-18 at 18. (emphasis added).

⁵²¹ CARGILL001358335-36 at 36.

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slaughter capacity.⁵²² Until this point in time, National Beef had been a growth company—it “had never closed a plant before.”⁵²³

204. Prior to the announcement, however, Tim Klein had explained to National Beef’s then-majority shareholder [REDACTED]
[REDACTED]
[REDACTED]

205. Given the importance of the plant to the Brawley area’s economy, local, regional, and state government officials rallied to persuade National Beef to remain open. Indeed, local authorities proposed numerous financial incentives to National Beef, including reduced utility costs, preferential tax treatment, and commitments to cattle herd growth from local cattle suppliers.⁵²⁵ Coverage of these efforts made it clear that regulators took National Beef’s situation seriously and hoped to persuade the company to continue operating the plant.⁵²⁶ However, National Beef rejected the proposal and proceeded to close the Brawley plant.⁵²⁷ Indeed, it is alleged that other evidence suggests that Klein’s apparent willingness to consider local proposals was not sincere: before National Beef even made the announcement about closing Brawley, [REDACTED]
[REDACTED]⁵²⁸ In

⁵²² CARGILL001358335-36 at 36; OWB-Declaration-0003. Based on CARGILL000128427 [REDACTED]
[REDACTED]

⁵²³ NationalBeef-00010853.

⁵²⁴ NationalBeef-00001631.

⁵²⁵ NationalBeef-00010920.

⁵²⁶ See, e.g., Waters, Theopolis, “National Beef to shut California plant, cites tight cattle supply,” Reuters, Jan. 31, 2014, *available at* <https://www.reuters.com/article/business/media-telecom/national-beef-to-shut-california-plant-cites-tight-cattle-supply-idUSL2N0L51GW/>; Rutherford, Burt, “National Beef To Close Brawley Plant In Spite of Efforts By Cattle Feeders,” Beef, Feb. 24, 2014, *available at* <https://www.beefmagazine.com/cattle-market-outlook/national-beef-to-close-brawley-plant-in-spite-of-efforts-by-cattle-feeders> (“a consortium of cattle feeders in California significantly sweetened the pot to entice National Beef Packing Co. to keep the doors open and the lights on in its Brawley, CA, packing plant.”); Meat + Poultry, “National Beef Plant Rescue Fails,” Feb. 24, 2014, *available at* <https://www.meatpoultry.com/articles/10638-national-beef-plant-rescue-fails> (“The proposal included measures to increase the head of cattle per year during the next several years. IID and the city of Brawley also proposed utility rate reductions, while the city of Brawley proposed cuts National Beef’s water rate and utility tax, which would have saved the plant about \$700,000 annually.”); Abou-Diwan, Antoine, Lopez, Karina, and Daly, Krista, “Brawley Beef Plant Closure Affects 1,300 Workers,” Imperial Valley Press, Feb. 1, 2014, *available at* https://www.ivpressonline.com/open/brawley-beef-plant-closure-affects-1-300-workers/article_d37d296a-8b0a-11e3-9e21-001a4bcf6878.html; AGProud, “National Beef Plant Closing Brawley Facility,” Mar. 24, 2014, *available at* <https://www.agproud.com/articles/50019-national-beef-plant-closing-brawley-facility>.

⁵²⁷ NationalBeef-00044849, attached to NationalBeef-00044848.

⁵²⁸ NationalBeef-00012513; NationalBeef-00266892; JBS-0000233320.

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other words, National Beef appears to have made up its mind and undertaken closure-consistent actions (involving another competitor) before informing the public.

206. [REDACTED]
[REDACTED]
[REDACTED] The responses of these competitors is noteworthy. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

207. At JBS, Bill Rupp (COO of JBS USA) sent the details to other JBS personnel and noted JBS’s involvement in the situation on the cattle supply front, which was confirmed in the responses.⁵³² [REDACTED]
[REDACTED]⁵³³

208. During the Class Period, National Beef sold the Brawley plant to One World Beef.⁵³⁴ National Beef’s behavior leading up to the sale, and the sale itself, advanced the objectives of the conspiracy. I understand that National Beef did not advertise the plant was for sale.⁵³⁵ Mr. Brandt who initiated the sale by contacting Tim Klein, National Beef’s CEO.⁵³⁶ The owner and President of One World Beef, Eric Brandt, worked in the marketing department for the

⁵²⁹ JBS-0001318866; NationalBeef-00001632; TYSONBEEF00405271; TYSONBEEF01230321; NationalBeef-00001651.

⁵³⁰ TYSONBEEF01230321.

⁵³¹ TYSONBEEF00405289.

⁵³² JBS-0002597738. Shortly after this exchange, Defendants convened at the National Cattlemen’s Beef Association (NCBA) convention, which was held February 4-7, 2014 in Nashville, TN (NCBA, “2014 Cattle Industry Convention Kicks off in Nashville,” 4CattleMen, Feb. 4, 2014, *available at* <https://www.4cattlemen.com/ncba2014/Releases/NCBA14-CICKicksOff.html>). I am unaware of any records which detail what discussions the processors may have held about the Brawley plant closure during the NCBA convention. [REDACTED]

(NationalBeef-00207977). [REDACTED]
[REDACTED] (NationalBeef-00207977).

⁵³³ JBS-0002208231.

⁵³⁴ OWB-Declaration-0005.

⁵³⁵ National Beef told Great American Group in 2014, [REDACTED]
[REDACTED] NationalBeef-00046080. [REDACTED] NationalBeef-00039210. It never listed the plant publicly. *See* Deposition of Simon McGee, June 10, 2024, pp. 183-185; Ex. 1608.

⁵³⁶ OWB-Declaration-0004.

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[REDACTED]

209.

[REDACTED] It would not be in

National Beef’s business interest to finance the deal when two prior companies failed to successfully operate the plant unless it thought there was a benefit to incentivize One World Beef to purchase it—in this case, keeping a more able competitor from operating the facility.

210.

When One World Beef reopened Brawley in November 2016, it was processing 800-900 head per week, which equates to 160-180 head per day over a five-day week—less than 8 percent of the 2,400 head-per-day capacity under National Beef’s ownership.⁵⁴¹ During the Class Period, One World Beef did not participate in federally inspected slaughter, meaning the plant’s output did not appear in the USDA’s published slaughter figures.⁵⁴²

III.B.2.f. Cargill’s 2014 Closure of Its Milwaukee, Wisconsin Plant

211.

While the Defendants were pleased with these closures, they believed additional capacity reductions were necessary. For example, on July 2, 2014, JBS’s Al Byers (JBS) told JBS President and CEO Andre Nogueira, [REDACTED]

⁵³⁷ OWB-Declaration-0001.

⁵³⁸ OWB-Declaration-0001; NationalBeef-00039574; AGProud, “Brandt keeps a golden touch in California,” Nov. 1, 2011, *available at* <https://www.agproud.com/articles/50283-brandt-keeps-a-golden-touch-in-california>

⁵³⁹ OWB-Declaration-0005.

⁵⁴⁰ OWB-Declaration-0005.

⁵⁴¹ As the supply of Holstein cattle has increased over time, slaughter has also increased. According to Eric Brandt, since 2020, the plant has increased its daily slaughter to between 1,000 and 1,400 head (OWB-Declaration-0005-6).

⁵⁴² Jan. 19, 2024 Email from Michael E. Sheats, Director, Livestock, Poultry, and Grain Market News Division, Livestock and Poultry Program, Agricultural Marketing Service, U.S. Department of Agriculture.

⁵⁴³ JBS-0002311170.

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[REDACTED]

[REDACTED]⁵⁴⁴ [REDACTED]

[REDACTED]⁵⁴⁵ [REDACTED]

[REDACTED]

[REDACTED]⁵⁴⁶ While the Milwaukee plant was not specifically focused on fed cattle, National Beef CEO Tim Klein previously explained that [REDACTED]

[REDACTED]

[REDACTED]

212.

[REDACTED]

[REDACTED]⁵⁴⁸ [REDACTED]

[REDACTED]⁵⁴⁹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁵⁵⁰ The closure also attracted attention from

industry analysts, who described the closure as the “third beef plant to shutter in 18 months” and evidence of meat processors “maintaining discipline in the current tight cattle environment.”⁵⁵¹

III.B.2.g. Tyson’s 2014 Closure of Its Cherokee, Iowa Plant, Idling of the Facility and Placing a Restrictive Deed Covenant Restricting its Use as a Beef Slaughter Facility

213.

On the heels of Cargill closing its Milwaukee plant, Tyson closed its beef processing plant in Cherokee, Iowa on September 27, 2014. While Tyson primarily used the plant to further process Tyson beef products (as opposed to slaughter itself), the closure nevertheless served to reduce beef processing capacity.

⁵⁴⁴ CARGILL000109661.

⁵⁴⁵ CARGILL000105052-74

⁵⁴⁶ CARGILL000110169; CARGILL000448426.

⁵⁴⁷ NationalBeef-00276483.

⁵⁴⁸ JBS-0001335848 [REDACTED]

⁵⁴⁹ [REDACTED]

⁵⁵⁰ TYSONBEEF02477830.

⁵⁵¹ TYSONBEEF03024908.

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214. Rather than selling the facility to someone interested in utilizing it for business purposes, Tyson then idled the Cherokee plant for four years. Documents indicate that Tyson paid \$130,000 annually in rent, plus maintenance costs and taxes, on the empty 250,000 square foot building, all to prevent a competing packer from using the facility.⁵⁵² [REDACTED]

[REDACTED]

[REDACTED] More than four years after ceasing operations at the Cherokee plant, the plant sold on September 15, 2018 after Tyson agreed to a deed restriction as a condition to its agreement to terminate the lease that “limit[ed] the [new] owner [Iowa Food Group] from harvesting more than 30% fed cattle of all cattle harvested for a period of 10 years.”⁵⁵⁶ It also required Iowa Food Group “to submit affidavits at least quarterly to update Tyson on all cattle-processing activity,” thereby allowing Tyson to minimize the threat of competition.⁵⁵⁷

III.B.2.h. Tyson’s 2015 Closure of Its Denison, Iowa Plant, Idling and Attempted Imposition of a Restrictive Deed

215. Tyson’s capacity reduction measures continued the next year with its Denison, Iowa plant. In March 2012, Tyson announced that its Denison, Iowa facility may close in 2013 after the company completed improvements at its Dakota City, Nebraska plant.⁵⁵⁸ However, Tyson

⁵⁵² Hardy, Kevin, “Held ‘hostage’ by Tyson: An Iowa town’s dilemma,” Des Moines Register, July 8, 2016, available at <https://www.news.iastate.edu/media-review/2016/07/08/hostage>; see also TYSONBEEF01765181 (describing lease but not rent cost).

⁵⁵³ Hardy, Kevin, “Held ‘hostage’ by Tyson: An Iowa town’s dilemma,” Des Moines Register, July 8, 2016, available at <https://www.news.iastate.edu/media-review/2016/07/08/hostage> (emphasis added).

⁵⁵⁴ TYSONBEEF03612749 (emphasis added).

⁵⁵⁵ TYSONBEEF01664332-34 at 33.

⁵⁵⁶ TYSONBEEF01661864-67; TYSONBEEF00432185.

⁵⁵⁷ Hardy, Kevin, “‘No hard feelings’: Tyson finally agrees to leave empty Iowa factory as new meat processor opens shop,” Des Moines Register, Sept. 19, 2018, available at <https://www.desmoinesregister.com/story/money/business/2018/09/19/tyson-foods-choke-choke-iowa-plant-iowa-food-group-moves-justin-robinson-pork-beef-chicken-processing/1356962002/>.

⁵⁵⁸ See TYSONBEEF00406442-46 at 43.

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[REDACTED]
[REDACTED]⁵⁶⁶

218. As with the Cherokee plant, Tyson required a deed restriction on the sale of the plant that limited the use to activities that did not involve the slaughter of cattle and the fabrication of cattle carcasses into beef; Tyson would not even entertain discussions with a potential suitor without first ensuring they were clear about deed restrictions.⁵⁶⁷ Perhaps due to the deed restriction, Tyson still had not sold the Denison plant by 2018. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁵⁶⁸

III.B.2.i. Non-Defendant Packers Behaved Differently During the Class Period

219. Iowa Premium Beef’s renovation and re-opening of a slaughter and fabrication plant in Tama, Iowa is an example of the contrasting behavior of non-Defendant processors during the Class Period. Iowa Premium was founded in January 2010 by a group of industry veterans and cattle producers, with a plan to renovate the existing Tama plant, which had been shuttered since 2004.⁵⁶⁹ [REDACTED]

[REDACTED]⁵⁷⁰ With the cattle herd already rebounding, Iowa Premium spent \$48 million renovating the plant,⁵⁷¹ adding [REDACTED]

[REDACTED]
[REDACTED]⁵⁷² The updated plant would be state-of-the-art, with a planned capacity of 2,000

⁵⁶⁶ TYSONBEEF03275404-10 at 07.

⁵⁶⁷ See TYSONBEEF01426314-15 at 15.

⁵⁶⁸ TYSONBEEF00436185-86 at 86.

⁵⁶⁹ NationalBeef-01712962-69 at 62; Ford, George, "Tama Approves Tax Breaks for Idled Beef Processing Plant," The Gazette, July 6, 2013, available at <https://www.thegazette.com/business/tama-approves-tax-breaks-for-idled-beef-processing-plant/>.

⁵⁷⁰ NationalBeef-01712962-69 at 62.

⁵⁷¹ Radio Iowa, "State and Local Officials Celebrate Renovated Beef Plant in Tama," Oct. 24, 2014, available at <https://www.radioiowa.com/2014/10/24/state-and-local-officials-celebrate-renovated-beef-plant-in-tama/>.

⁵⁷² NationalBeef-01712962-69 at 62-63.

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[REDACTED] ⁵⁷⁶ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] ⁵⁷⁷ [REDACTED] ⁵⁷⁸

222. Despite this pressure, a ribbon cutting ceremony held on October 23, 2014 and attended by state and local officials celebrated Iowa Premium opening the plant.⁵⁷⁹ Government officials praised the investment in the local workforce and the “shot of adrenaline” it would inject into the state’s cattle market.⁵⁸⁰ Because of the economic prosperity the re-opening expected to bring to the local community and the state, the company received up to \$3.6 million in tax rebates from the city,⁵⁸¹ along with \$4 million in state tax credits,⁵⁸² for the project.

223. [REDACTED]
[REDACTED] ⁵⁸³ [REDACTED]
[REDACTED]
[REDACTED] ⁵⁸⁴ [REDACTED]
[REDACTED]
[REDACTED] ⁵⁸⁵ No restrictive covenant was put in place that prohibited National Beef from operating Tama as a fed cattle slaughter or fabrication facility.

⁵⁷⁶ JBS-0000234135.

⁵⁷⁷ JBS-0000375952.

⁵⁷⁸ JBS-0000375952.

⁵⁷⁹ Radio Iowa, "State and Local Officials Celebrate Renovated Beef Plant in Tama," Oct. 24, 2014, accessed Sept. 25, 2024, <https://www.radioiowa.com/2014/10/24/state-and-local-officials-celebrate-renovated-beef-plant-in-tama/>.

⁵⁸⁰ *Id.*

⁵⁸¹ Ford, George, "Tama Approves Tax Breaks for Idled Beef Processing Plant," *The Gazette*, July 6, 2013, available at <https://www.thegazette.com/business/tama-approves-tax-breaks-for-idled-beef-processing-plant/>.

⁵⁸² JBS-0002320609-10 at 09.

⁵⁸³ NationalBeef-00006184 at p. 7.

⁵⁸⁴ [REDACTED]

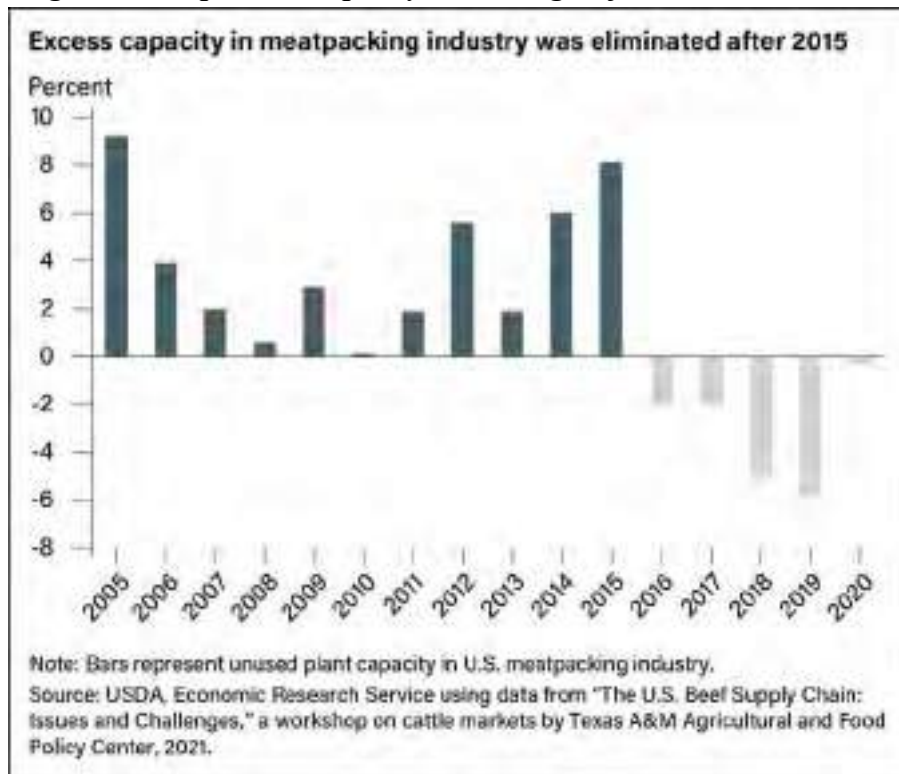
⁵⁸⁵ NationalBeef-01712970.

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III.B.2.j. Defendants’ Capacity Reductions Lowered Demand for Fed Cattle, Constrained Growth in the Supply of Beef, and Set the Stage for Massive Increases in Profit

224. Defendants’ plant closures caused a dramatic shift in industry capacity, and their ability to meet the needs of the fluctuating cattle cycle were impaired, as shown in the figure below.⁵⁸⁶ Importantly, reducing current and future capacity in 2013 and 2014, they sent a chilling signal to cattle suppliers that would incentivize reduced production in 2016, 2017, and beyond.

Figure 23. Impact on Capacity Following Defendants’ Closures



225. The USDA, the governmental agency assigned to oversee the agricultural industry, has noted the extreme impact that the closures have had, writing that “**Something appears to have changed after 2015.**”⁵⁸⁷ The USDA attributes the increasing profits of the beef processing

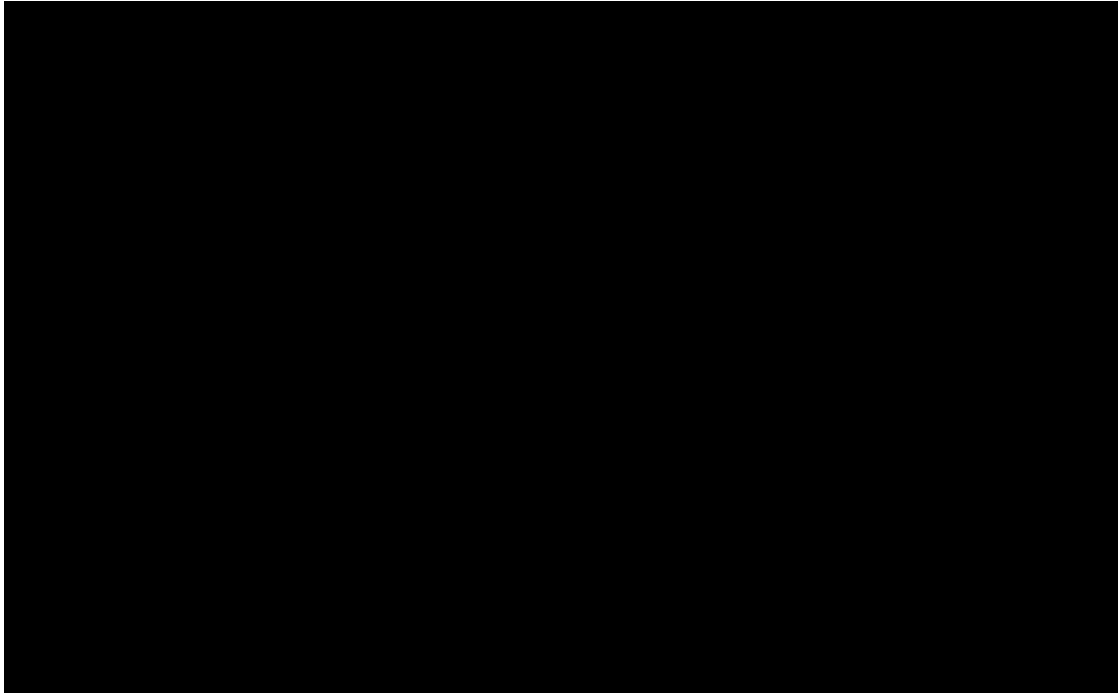
⁵⁸⁶ James MacDonald, “Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices”, Amber Waves, Jan. 25, 2024, available at <https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices/>.

⁵⁸⁷ James MacDonald, “Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices”, Amber Waves, Jan. 25, 2024, available at <https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices/>.

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industry to this capacity reduction through plant closures.⁵⁸⁸ Defendants’ own internal documents reflect this same precipitous drop in industry capacity, couching it as “capacity rationalization” and attributing it, in part, to poor packer margins; that is, Defendants constrained their capacity to increase their margins by processing less cattle into beef, thereby reducing beef supply and increasing beef prices:⁵⁸⁹

Figure 24. Internal JBS Chart Illustrating Abrupt Closures Following Drought



226. Evidence suggests that the reductions were effective in increasing profits. As an example, an internal Tyson document shows [REDACTED]

[REDACTED]

⁵⁸⁸ James MacDonald, “Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices”, Amber Waves, Jan. 25, 2024, *available at* <https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices/>.

⁵⁸⁹ JBS-0000570624 at p. 15.

⁵⁹⁰ TYSONBEEF00410063-64 at 64.

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Figure 25. Internal Tyson Chart Showing Impact of Plainview (Cargill) Closing



227. Estimated processor industry profit increased sharply once more by July 2014, two months after National Beef shuttered its Brawley packing and fabrication facility.⁵⁹¹

228. The industry recognized the impact of the 2013-2015 closures on prices paid by consumers for beef. [REDACTED]

[REDACTED] USDA’s farm-to-wholesale spread, which “is the difference between the average monthly price paid by packers for choice-graded cattle and the wholesale value received by packers for the beef and byproducts produced from the animals,” also demonstrates the widening margin and thus Defendants’ increased profits due to the closures:⁵⁹³

⁵⁹¹ TYSONBEEF00410063-64 at 64.

⁵⁹² TYSONBEEF00783756-941 at 862.

⁵⁹³ James MacDonald, “Concentration in U.S. Meatpacking Industry and How It Affects Competition and Cattle Prices”, Amber Waves, Jan. 25, 2024, *available at* <https://www.ers.usda.gov/amber-waves/2024/january/concentration-in-u-s-meatpacking-industry-and-how-it-affects-competition-and-cattle-prices/>.

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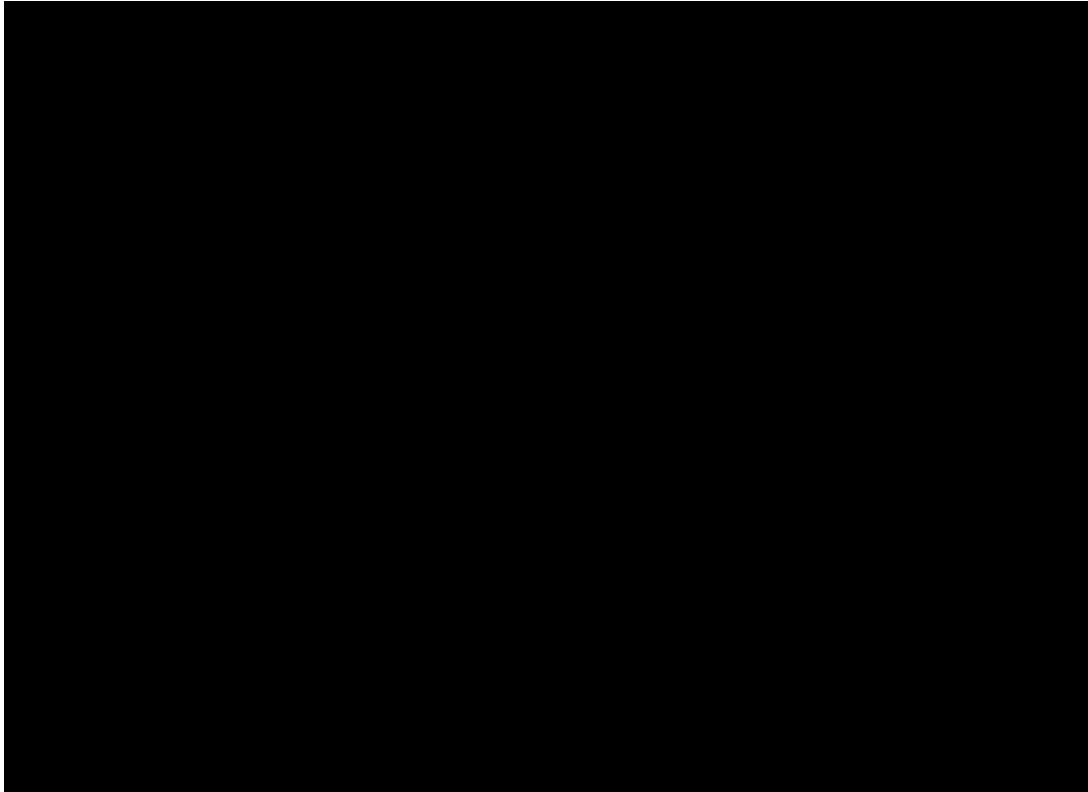
Figure 26. Farm to Wholesale Spread Widens During Class Period



229. The success of Defendants’ plant closure measures is reflected below in **Figure 27**, which demonstrates a decline in the price of live cattle and an inflated retail price charged to consumers that detached from, and during the Class Period was almost completely unrelated to, the price of live cattle:

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Figure 27. Growth In Defendants’ Profits During the Class Period⁵⁹⁴



230. It is alleged that the reductions in capacity and coordination by Defendants ultimately led to reduced production of beef and higher prices. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁵⁹⁵ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁵⁹⁶ [REDACTED]

[REDACTED]

[REDACTED]

⁵⁹⁴USDA Economic Research Service, “Historical monthly price spread data for beef, pork, broilers, accessed June 18, 2024, *available at* <https://www.ers.usda.gov/data-products/meat-price-spreads/>; Iowa State University Extension and Outreach, “Estimated Returns to Finishing Steer Calves, Iowa,” *available at* <https://estimatedreturns.econ.iastate.edu/>. See backup production.

⁵⁹⁵ CARGILL000110026.

⁵⁹⁶ CARGILL000110026.

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[REDACTED] 597 [REDACTED]

[REDACTED] 598

[REDACTED]

[REDACTED]

[REDACTED] 599

231. In economic terms, because of their domination of the packing industry, Defendants effectively account for the demand curve for fed cattle. As such, reducing slaughter capacity is equivalent to a reduction in industry-wide demand for fed cattle. Basic economics teaches that, when demand shifts downward, a reduction in supply will eventually follow. The speed with which such a reduction in supply happens depends on the shape of the supply curve. Due to the length of the breeding, gestation, and growing process, the supply of fed cattle is largely fixed in the short term, but becomes increasingly flexible over time. Over a period of two to three years, ranchers can and will appropriately respond to reductions in demand for cattle. Thus, by collectively reducing their demand for fed cattle in 2013-2014, and by reinforcing this lowered demand with repeated production cuts in 2014-2015, as well as the failure of Defendants to expand capacity meaningfully, the expected economic outcome is a continued reduction in fed cattle—and beef—in the future. To be clear, this outcome does not mean or require that the cattle supply must decline in absolute terms. Indeed, as a result of the natural turn in the cattle cycle, the supply of fed cattle increased in the years following 2014. Basic economic theory indicates that, but for Defendants’ alleged collective reduction in demand for fed cattle, the supply of cattle and beef would have increased more throughout the Class Period. Due to the way in which beef is sold (through prices based on cutout values) in the marketplace, restrained overall supply translates to higher prices paid by all purchasers of beef (whether or not that restraint results in decreased in absolute levels).

⁵⁹⁷ CARGILL000113423.

⁵⁹⁸ CARGILL000113423.

⁵⁹⁹ TYSONBEEF03327659; TYSONBEEF03142457 [REDACTED]
 [REDACTED]; JBS-0002624020 [REDACTED]
 CARGILL000284612 ([REDACTED]); JBS-
 0001351851 (2018 Short Order Recap); CARGILL000649177 ([REDACTED]).

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III.B.2.k. Defendants’ Reactions to Plant Closures Are Consistent with the Alleged Conspiracy and the Existence of a Broader “Understanding”

232. In the sections above I discussed numerous plant closures (or idling) that Defendants undertook just before and during the Class Period.⁶⁰⁰ Defendants universally responded positively to plant closures in the belief that they would lead to increased profits across the industry. [REDACTED]

[REDACTED]

233. Closing the Plainview plant (or any plant) would only be “[REDACTED]” if no other processors used their excess capacity to increase their share of the market at the closing-firm’s expense. Conceptually, the only reason a reduction in capacity would “help” the industry would be if the reduction in capacity led to lower input costs (*i.e.*, lower cattle prices) and / or higher prices for beef. For example, if Cargill reduced its capacity, but did not reduce its output (by increasing utilization at other plants), it may have no impact on “the industry” at all. Similarly, if Cargill reduced its capacity and its output, but other processors responded by attempting to capture Cargill’s share of the market (through increased utilization at their respective plants), it would similarly not benefit “the industry.” Indeed, “the industry” could even be made worse off if Cargill did not reduce output and other processors increased their output (by incorrectly assuming Cargill would reduce), thereby increasing total industry output. In other words, absent an agreement, it would be expected that Cargill’s closure of the Plainview plant would lead to little more than Cargill ceding market share to other processors.

However, [REDACTED]

⁶⁰⁰ See **Figure 19**.

⁶⁰¹ TYSONBEEF01932209.

⁶⁰² TYSONBEEF01817619-620.

⁶⁰³ NationalBeef-00268802.

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[REDACTED]

[REDACTED]⁶⁰⁴

234. Defendants’ assumption that the closure of a small plant or two would lead to increased margins is itself noteworthy. Again, in the context of apparent widespread underutilization, it does not immediately follow that shuttering one plant will lead to increased profitability for any competitor, let alone an entire industry. Indeed, if other firms—or even the shuttering firm—increase output in response, there would be no reason to expect higher industry margins.

[REDACTED]

[REDACTED]

[REDACTED]⁶⁰⁵ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁶⁰⁶ Klein confirmed in his deposition that

National [REDACTED]

[REDACTED]

235. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁶⁰⁸ [REDACTED]

[REDACTED]

[REDACTED]⁶⁰⁹

236. In other words, Defendants recognized that simply reducing capacity would not be enough to increase industry margins, because each of them had the ability to increase output elsewhere

⁶⁰⁴ CARGILL000102739, slide 29.

⁶⁰⁵ NationalBeef-00270822.

⁶⁰⁶ NationalBeef-00395625.

⁶⁰⁷ Deposition of Timothy Klein, August 7, 2024, pp. 43-44.

⁶⁰⁸ JBS-0000213337.

⁶⁰⁹ JBS-0001433069.

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and continue to chase market share. Indeed, it would be in the shuttering firm’s economic self-interest to try and maintain (or even grow) its market share by increasing utilization elsewhere, and it would be in competing firms’ economic self-interest to try and capture the shuttering firm’s business. The only scenario in which industry margins improve is one where none of the industry participants attempt to compete over the change in capacity. The fact that National Beef, Tyson, and JBS all recognized this and appear to have been committed to not increasing output in the wake of Cargill’s Plainview closure is noteworthy, as it suggests avoidance of economic competition.

III.B.3. *Margin Over Market Share: Defendants Allegedly Stop Competing for Market Share*

237. In a competitive environment, firms compete with each other on price in order to earn more sales than their competitors. Firms that are successful in competing will earn more sales and thus increase their market share, while firms that are less successful will see their market share erode. In the context of commodity-like products such as beef, competition on price will naturally lead to lower margins as each firm attempts to undercut another to win more sales. Importantly, in order to sell more beef, a firm has to produce more beef. Thus, each firm would be expected to expand slaughter as much as possible to earn additional sales, until it becomes unprofitable to do so. In fact, evidence of the processors’ historical margins reflects this very outcome—in virtually every year over the two decades leading up to the Class Period, Defendants’ margins were quite low.⁶¹⁰ [REDACTED]

238. However, evidence in this case indicates that in the years leading up to the Class Period, the Defendants began increasingly adopting “margin over market share” as an approach to slaughter decisions. This approach—which focused on managing kills to maintain or improve profit margins—was a major departure from what Defendants and industry commentators referred to as the “old way” of competing for market share. Tyson allegedly began signaling its adoption of “margin over market share” as early as 2012, and other Defendants began adopting it during 2013 and 2014. Because of the way that beef is priced through cutout values,

⁶¹⁰ See Klein Congressional Testimony; Miller Congressional Testimony; King Congressional Testimony.

⁶¹¹ Deposition of Timothy Klein, pp. 30-31.

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a change in the level of competition among packers would necessarily flow through to prices and impact all or virtually all customers.

III.B.3.a. Tyson

239. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶¹² [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶¹³ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶¹⁴

240. [REDACTED]
[REDACTED]
[REDACTED]⁶¹⁵ The notion of “margin over market share” was spread further than just investor calls. For example, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶¹⁶ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶¹⁷

⁶¹² TYSONBEEF03018169.
⁶¹³ TYSONBEEF03013136.
⁶¹⁴ TYSONBEEF03018693-TYSONBEEF03018709 at 702.
⁶¹⁵ JBS-0000530638.
⁶¹⁶ TYSONBEEF02491422; *See also* TYSONBEEF03019583, p. 14 [REDACTED]
⁶¹⁷ Cattle Buyers Weekly, March 4, 2013, NationalBeef-00298456 at p. 3; NationalBeef-00270070; *See also* TYSONBEEF02491422.

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Again, such comments only make sense if it assumed that no competitors (or Cargill itself) would increase utilization; by commenting on this as if it is an assumed outcome, Tyson signaled its intent to other industry participants.

241. Tyson’s adoption of “margin over market share” gained attention in industry publications as well. Cattle Buyers Weekly provided coverage for Tyson, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

242. Tyson’s adoption of “margin over market share” was more than just a saying for public statements; the same sentiment was expressed internally as well. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

622

⁶¹⁸ NationalBeef-00727819 at page 3; JBS-0002334348 at page 3.

⁶¹⁹ TYSONBEEF00335327.

⁶²⁰ TYSONBEEF00335327. “Chain speed” generally refers to the speed with which slaughter facilities run. While the USDA sets certain limitations on chain speeds for safety reasons, plant operators have considerable latitude to set their chain speeds to meet production targets. *See, e.g.*, TYSONBEEF00406610; NationalBeef-00266376 [REDACTED]

⁶²¹ TYSONBEEF00414270.

⁶²² CARGILL001174990. [REDACTED] (CARGILL001310794).

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[REDACTED]
[REDACTED]⁶²³

243. Tyson’s commitment to managing margins was so determined that it even created some frustration within the company at times. In mid-2016 when processor margins were soaring (though they would continue to grow over the next few years), [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]⁶²⁷ The next month (November 2016), [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

244. Evidence also indicates that Tyson periodically felt the need to reinforce its commitment to “margin over market share” publicly. For example, [REDACTED]

[REDACTED]
[REDACTED]⁶³⁰ [REDACTED]
[REDACTED]

⁶²³ TYSONBEEF03456550.

⁶²⁴ TYSONBEEF00578291; Deposition of Glenn Strickholm, June 12, 2024, pp. 198-202; See also TYSONBEEF00578579.

⁶²⁵ TYSONBEEF00578291.

⁶²⁶ TYSONBEEF00578291.

⁶²⁷ TYSONBEEF00281144.

⁶²⁸ TYSONBEEF01212386

⁶²⁹ TYSONBEEF01212386.

⁶³⁰ NationalBeef-00459170.

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[REDACTED]

[REDACTED] 644

250.

In [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 645

[REDACTED]

[REDACTED] 646 In [REDACTED]

[REDACTED]

[REDACTED] 647

[REDACTED]

[REDACTED]

[REDACTED] 648

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 649

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 650

⁶⁴⁴ JBS-0000821093.

⁶⁴⁵ JBS-0000503161.

⁶⁴⁶ JBS-0000167217.

⁶⁴⁷ JBS-0000167508.

⁶⁴⁸ JBS-0000668126.

⁶⁴⁹ JBS-0000668126.

⁶⁵⁰ JBS-0000305573.

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III.B.3.c. National Beef

251.

[REDACTED]

[REDACTED]

[REDACTED] ⁶⁵¹ [REDACTED]

[REDACTED]

[REDACTED] ⁶⁵² [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁶⁵³ [REDACTED]

[REDACTED]

[REDACTED] ⁶⁵⁴ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

252.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁶⁵⁶ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁵¹ NationalBeef-00557871. [REDACTED] See NationalBeef-00540727.

⁶⁵² NationalBeef-00557871; Deposition of Monte Lowe, July 18, 2024, p. 61.

⁶⁵³ NationalBeef-00557871.

⁶⁵⁴ [REDACTED]

⁶⁵⁵ NationalBeef-00212527.

⁶⁵⁶ NationalBeef-00474958.

⁶⁵⁷ Deposition of Monte Lowe, July 18, 2024, pp. 54-55.

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[REDACTED]

253. [REDACTED]
[REDACTED]
[REDACTED].⁶⁵⁸ Whether the specific phrase was familiar to Klein or not, it is clear from Mr. Lowe’s communications with Fish that the strategy behind the words was utilized. [REDACTED]
[REDACTED]
[REDACTED]

254. National Beef continued to acknowledge the importance of managing margins throughout the Class Period, and the effect that exercising restraint would have. For example, in response to news of expanding cattle supplies in February 2018, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶⁶¹ [REDACTED]
[REDACTED]
[REDACTED]⁶⁶² He further explained that, as the cattle supply continued to expand, [REDACTED]
[REDACTED]

⁶⁵⁸ Deposition of Timothy Klein, August 7, 2024, pp. 32-33. According to Klein, “[REDACTED]”

⁶⁵⁹ Deposition of Timothy Klein, August 7, 2024, p. 144.

⁶⁶⁰ NationalBeef-00723314.

⁶⁶¹ NationalBeef-00571158.

⁶⁶² Deposition of Timothy Klein, August 7, 2024, pp. 150-151.

⁶⁶³ Deposition of Timothy Klein, August 7, 2024, pp. 151-152.

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III.B.3.d. Cargill

255. As discussed above, prior to the Class Period, [REDACTED]
[REDACTED]

[REDACTED] But evidence indicates that Cargill itself was not on board with this course of action and instead sought to maintain its market share despite the closure. [REDACTED]

[REDACTED]⁶⁶⁴ Reilly articulated Cargill’s justification for doing this by saying that Cargill had [REDACTED]

While Cargill did not make up the entire loss of market share from Plainview, this type of behavior was nevertheless the opposite of what the other Defendants anticipate or hoped for.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶⁶⁶ [REDACTED]
[REDACTED]
[REDACTED]⁶⁶⁷

256. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶⁶⁸ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶⁶⁹ [REDACTED]

⁶⁶⁴ CARGILL000623055.
⁶⁶⁵ CARGILL000618492.
⁶⁶⁶ JBS-0001317866.
⁶⁶⁷ JBS-0001317866.
⁶⁶⁸ JBS-0001318800-802.
⁶⁶⁹ JBS-0001318800-802.

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[REDACTED]
[REDACTED] 670

257. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 671

258. [REDACTED]
[REDACTED]
[REDACTED] 672
[REDACTED]
[REDACTED] 673

259. By early summer, Reilly noticed that the other processors were not behaving as would be expected in a competitive market, but [REDACTED]
[REDACTED] Specifically, in a June 2013 email, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

⁶⁷⁰ JBS-0001318800.

⁶⁷¹ JBS-0001156042.

⁶⁷² CARGILL000620774.

⁶⁷³ CARGILL000620774 at 776 [REDACTED]

⁶⁷⁴ CARGILL000618091.

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[REDACTED]

[REDACTED] 675

260. In late 2013 and early 2014, Cargill re-emphasized its leading role in reducing industry capacity and its goal of growing its market share. For example, in mid-November, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 677

261. However, documents and evidence suggest that, by mid-2014, Cargill was increasingly adopting the margin-focused approach espoused by the other Defendants. For example, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 678 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 679 [REDACTED]

[REDACTED]

[REDACTED] 680 [REDACTED]

[REDACTED] 681

262. Finally, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁷⁵ CARGILL000618091.

⁶⁷⁶ CARGILL001320846.

⁶⁷⁷ CARGILL001295641.

⁶⁷⁸ CARGILL001289013.

⁶⁷⁹ CARGILL001291236.

⁶⁸⁰ CARGILL001290721.

⁶⁸¹ CARGILL001290721.

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[REDACTED]

[REDACTED]⁶⁸² This continued into 2015: in a presentation from February 2015, Cargill set its “Budget” and “Forecast” targets for 2016 and 2017 at [REDACTED]⁶⁸³ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁶⁸⁴

III.B.3.e. Industry Commentators Recognized that the Processors’ Combined Efforts had Restrained Competition

263. The Defendants’ alleged adoption of an approach that prioritized managing kills to maintain margin had the effect of reducing competition. Starting in mid-2015 and continuing further into the Class Period, industry commentary recognized that a massive shift in the beef industry had taken place. [REDACTED]

[REDACTED]

[REDACTED]⁶⁸⁶.

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁸² CARGILL001311979-80 at 80.

⁶⁸³ Keating Exhibit 2432 CARGILL001930565, presentation p. 2; Deposition of John Keating, September 4, 2024, pp. 56-57.

⁶⁸⁴ CARGILL001163487.

⁶⁸⁵ [REDACTED]

⁶⁸⁶ [REDACTED]

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[REDACTED]

264. After reading [REDACTED] commentary, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

265. [REDACTED] commentary and Byers’s response are noteworthy. First, Byers explained that the outcome—increased profits for Defendants—was directly due to their actions and not a function of exogenous factors like demand increases or cattle supply changes. Second, he explained how the Defendants’ actions increased margins in two ways: by restraining production collectively, the Defendants “starve” the box market (*i.e.*, create an artificial beef supply shortage to increase wholesale prices) and (as [REDACTED] implied) demoralize cattle feeders into accepting lower prices for cattle. Third, Byers seems to suggest that this market power can be exercised at will (*i.e.*, not merely in times of short cattle supplies) and overcome larger market forces. That is, the Defendants were able—through collective action—to bring about major decreases in cattle prices during “the tightest fed supplies in history,” when economic logic would expect that prices would rise.

266. [REDACTED]
[REDACTED]
[REDACTED]⁶⁸⁸ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁶⁸⁹

267. A couple of months after [REDACTED] comments, [REDACTED] added his support—and that of an anonymous industry insider—to the notion that major decreases in competition were giving

⁶⁸⁷ JBS-0000167217.

⁶⁸⁸ [REDACTED]

⁶⁸⁹ [REDACTED]

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significant leverage to Defendants. Writing in September 2016, Hales opined that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

268. Hales then opined that [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]

269. Hales went to emphasize the low kill volume, even in the face of [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

270. In these examples, Hales and Fish both recognize that Defendants are no longer competing, that their increased leverage has led to soaring profits, and that Defendants are still collectively managing their kill volumes. These comments are even more striking given that they come in 2015 and 2016, before Defendants’ profits reached even greater heights throughout the remainder of the Class Period. As I discuss in a later section, Defendants’ extreme growth in profit margins during the Class Period far exceeds any margins in the industry’s modern history and is not explained by ordinary factors of supply and demand.

⁶⁹⁰ JBS-0000557697-689.

⁶⁹¹ JBS-0000557697-689.

⁶⁹² JBS-0000557697-689.

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III.B.4. Defendants Changes to Target Market Shares Are Consistent with the Alleged Conspiracy

271. Defendants are alleged to have agreed on an allocation of market shares based on their respective industry capacities. Economic literature indicates that this type of agreement can be highly effective. As explained by Carlton and Perloff, an “effective technique is for members of a cartel to agree to fix market shares (say, at their precartel levels). As long as market shares are easily observable, no firm has an incentive to cut its price. If it lowered its price, its share would increase, and other firms would retaliate. For example, cartel members who detect changes in the output levels of other firms could adjust their own output to maintain their proportionate shares of market output. All firms expect this reaction, so no firm has an incentive to increase its own output only to earn lower profits after retaliation.”⁶⁹³ In this case, Defendants’ market shares and output are highly visible, due to reporting data from the USDA and widely shared information amongst Defendants and industry conduits. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁶⁹⁴ In this section, I discuss more generally the Defendants’ adoption and use of target market shares as they relate to the alleged conspiracy.

272. Many firms in many industries track their own market shares, and even pay attention to the market shares of competitors. Thus, it is not surprising to find that Defendants spent significant efforts tracking and analyzing their own market shares and estimating those of competitors. However, there is a difference between using market shares to assess outcomes after the fact and using them to determine outcomes beforehand. Evidence in this case indicates that Defendants routinely relied on their market shares to set slaughter volumes ahead of time, reduced kills to avoid exceeding their shares, and generally relied on each other to adhere to the same pre-determined volume shares.

⁶⁹³ Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 4th ed. (Chicago, IL: Addison Wesley, 2005), p. 141.

⁶⁹⁴ NationalBeef-00002095-96 at 95.

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III.B.4.a. National Beef’s Target and Actual Market Shares.

273. Prior to the time period in question for this case, National Beef had grown substantially in market share over time. As Tim Klein, the President and CEO of National Beef wrote, [REDACTED]

274. As discussed previously, National Beef closed the Brawley plant in the spring of 2014. At the time of its closure, the Brawley plant accounted for approximately [REDACTED] of the industry’s capacity. Documents show that, prior to closure, National Beef had a market share target of 14.75%. In this context, closing Brawley would lead to a market share of 12.75% instead.

275. However, while in the process of closing the Brawley plant, National Beef [REDACTED]

Evidence indicates that target market share was in place when Tim Klein was in Chicago for the AMI conference in July 2014.

276. Documents produced related to the meetings in Chicago indicate that Defendants and other attendees discussed cuts to slaughter plans. For example, [REDACTED]

⁶⁹⁵ NationalBeef-00298398

⁶⁹⁶ NationalBeef-00001603 at 604 [REDACTED]

pp. 94-98.

⁶⁹⁷ NationalBeef-01696162; Deposition of Monte Lowe, July 18, 2024, pp. 106-108; Deposition of Timothy Klein, pp. 107-111.

⁶⁹⁸ TYSONBEEF00476366.

⁶⁹⁹ JBS-0001302439.

See also Klein Deposition,

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[REDACTED]
[REDACTED] 700

277.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 703
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 705
[REDACTED]
[REDACTED] 706 In an e-mail with the subject line [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

278.

[REDACTED]
[REDACTED]
[REDACTED]

⁷⁰⁰ JBS-0001302439.

⁷⁰¹ NationalBeef-00871649; Deposition of Monte Lowe, July 18, 2024, pp. 116-124.

⁷⁰² NationalBeef-00012111; Deposition of Monte Lowe, July 18, 2024, pp. 125-128.

⁷⁰³ [REDACTED]

⁷⁰⁴ Deposition of Monte Lowe, July 18, 2024, Exhibit 1768; Deposition of Monte Lowe, July 18, 2024, pp. 140-143; Deposition of Timothy Klein, August 7, 2024, pp. 127-130.

⁷⁰⁵ CARGILL001383724.

⁷⁰⁶ [REDACTED]

⁷⁰⁷ NationalBeef-01697714.

⁷⁰⁸ JBS-0002827403.

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[REDACTED]

[REDACTED] 709 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 710 [REDACTED]

[REDACTED]

[REDACTED] 711 [REDACTED]

279.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 712 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 713 [REDACTED]

[REDACTED]

[REDACTED] 714 [REDACTED]

[REDACTED]

[REDACTED] 715 [REDACTED]

⁷⁰⁹ NationalBeef-00023526.

⁷¹⁰ NationalBeef-00023526.

⁷¹¹ NationalBeef-00313437; NationalBeef-00023526; NationalBeef-00401702; NationalBeef-00403636.

⁷¹² NationalBeef-00002144 at slide 10; *See also* NationalBeef-01449404 (January 14, 2019 spreadsheet with data for National Beef’s monthly market share from January of 2010 through December of 2018. [REDACTED])

⁷¹³ NationalBeef-00062406.

⁷¹⁴ NationalBeef-00062406.

⁷¹⁵ *See* NationalBeef-01699584 ([REDACTED])
[REDACTED] see
NationalBeef-01714663 [REDACTED]

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280. The process described by McGee involved the use of weekly kill plans to determine the volume needed to achieve their target market share. National Beef’s Vice President of Logistics and Planning, Bob Manning, prepared weekly “Kill Fab Sched Combined” spreadsheets planning National Beef’s kills.⁷¹⁶ [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]⁷¹⁸

281. Estimates are rarely perfect, and other documents show that National Beef routinely monitored its kill plan throughout the week and made adjustments when necessary to ensure that it was managing kills appropriately. Adjustments could be needed due to changes in cattle supply or changes in other Defendants’ slaughter activities. For example, Terry Wilkerson notified Tim Klein when he had learned that “JBS & Tyson have reduced hours.”⁷¹⁹ Similarly, [REDACTED]

[REDACTED]
[REDACTED]⁷²⁰

282. There are [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁷²¹ [REDACTED]
[REDACTED]
[REDACTED]⁷²²

⁷¹⁶ These spreadsheets were circulated weekly to various National Beef executives and managers including Art Wagner, Bill McLaurin, Doug Mascher, Eric Guettermann, Monte Lowe, Phil Groetken, Simon McGee, Terry Wilkerson, Tim Klein, Walter Steimel, and others. Some emails circulating the “Kill Fab Sched Combined” would include Manning’s notes regarding adjustments to the kill schedule. *See e.g.*, NationalBeef-00066177.

⁷¹⁷ *See, e.g.*, NationalBeef-00299792; NationalBeef-00865170; NationalBeef-00566296.

⁷¹⁸ NationalBeef-00002537.

⁷¹⁹ NationalBeef-00268722.

⁷²⁰ NationalBeef-00431087.

⁷²¹ NationalBeef-00004859.

⁷²² NationalBeef-00004859.

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283. Similarly, [REDACTED]
[REDACTED]⁷²³ [REDACTED]
[REDACTED]⁷²⁴ [REDACTED]
[REDACTED]⁷²⁵ [REDACTED]
[REDACTED]
[REDACTED]⁷²⁶ [REDACTED]
[REDACTED]
[REDACTED]⁷²⁷

284. In another example from March 2018, Eric Guettermann told Bill McLaurin and Monte Lowe that the Tim Klein was concerned about [REDACTED]
[REDACTED]
[REDACTED]

285. In July 2018, Monte Lowe told Tim Klein [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁷³¹ Yet again, in October 2018, [REDACTED]
[REDACTED]
[REDACTED]

⁷²³ NationalBeef-00005585.
⁷²⁴ NationalBeef-00005585.
⁷²⁵ NationalBeef-00005585.
⁷²⁶ NationalBeef-00212033.
⁷²⁷ NationalBeef-00212033.
⁷²⁸ NationalBeef-01697236.
⁷²⁹ NationalBeef-00201526.
⁷³⁰ NationalBeef-00003526.
⁷³¹ NationalBeef-00012739.

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[REDACTED]

III.B.4.c. Tyson Target and Actual Market Shares

289.

[REDACTED]

[REDACTED]⁷³⁹ Steve Stouffer, for example, looked at the FED comparison sheets to determine “who drove the kill this week.”⁷⁴⁰ [REDACTED]

[REDACTED]

[REDACTED]⁷⁴¹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

290.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁷⁴³

291.

[REDACTED]

[REDACTED]

[REDACTED]⁷⁴⁴ [REDACTED]

⁷³⁸ CARGILL001292273; CARGILL000146732; CARGILL000151945; CARGILL001841651; CARGILL000242271; CARGILL000251692.

⁷³⁹ TYSONBEEF00240161; TYSONBEEF01274721; TYSONBEEF01320568; TYSONBEEF00278831; TYSONBEEF00393367.

⁷⁴⁰ TYSONBEEF00302431.

⁷⁴¹ TYSONBEEF00240161; TYSONBEEF01274721; TYSONBEEF01320568; TYSONBEEF00278831; TYSONBEEF00393367.

⁷⁴² TYSONBEEF01813257-58.

⁷⁴³ TYSONBEEF01622470; TYSONBEEF01410599; TYSONBEEF00000616; TYSONBEEF01848250; TYSONBEEF02153396; TYSONBEEF01658415; TYSONBEEF03541331.

⁷⁴⁴ TYSONBEEF01810852 [REDACTED]

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[REDACTED]

[REDACTED]⁷⁴⁵

III.B.4.d. JBS Target and Actual Market Shares

292.

[REDACTED]

[REDACTED]⁷⁴⁶ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

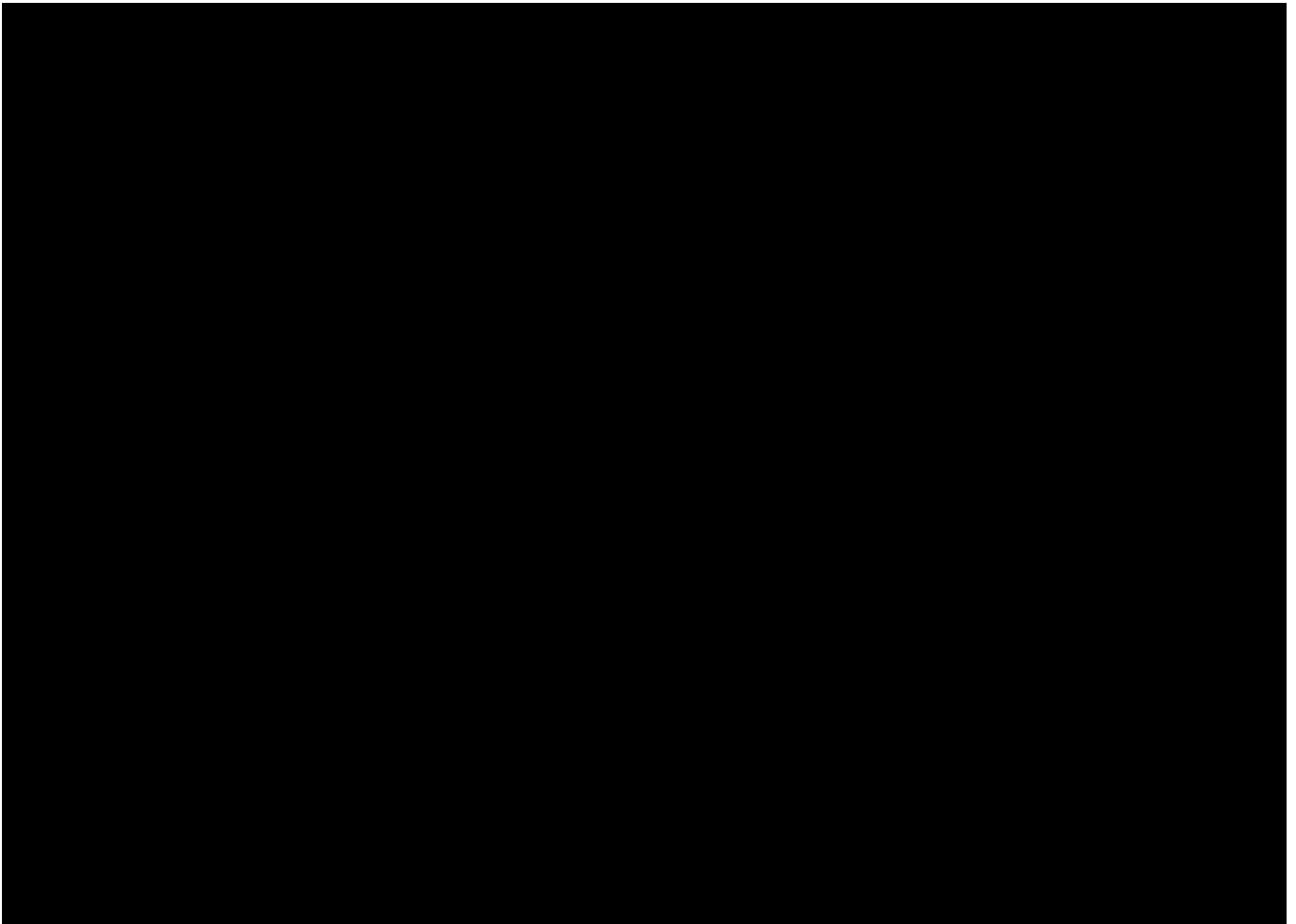
[REDACTED]

⁷⁴⁵ TYSONBEEF01703699 at slide 5.

⁷⁴⁶ JBS-0000041771 (Holloway Ex. 635).

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Figure 28. JBS Internal Chart Showing Use of “Capacity” Share⁷⁴⁷



293.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁷⁴⁸ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁷⁵⁰ [REDACTED]

⁷⁴⁷ JBS-0000186517-524.

⁷⁴⁸ JBS-0000071922; JBS-0000071105; JBS-0000421131.

⁷⁴⁹ [REDACTED] . Deposition of Larry Rose, July 23, 2024, p. 266-270.

⁷⁵⁰ JBS-0000091706; JBS-0000513476; JBS-0000326531; JBS-0000173481.

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294. As discussed above, Defendants closely tracked their market shares during the Class Period, and generally targeted their capacity shares. Defendants did not make significant or frequent changes to their target shares, with the exception of Tyson, who repeatedly decreased its target share over time. These patterns are consistent with the alleged conspiracy and an agreement on market share allocation.⁷⁵¹

III.B.5. Defendants Shared Competitively Sensitive Information, Implemented Frequent Reductions to Slaughter, and Monitored Each Other’s Activities

295. For a conspiracy to function, participants must be able to communicate with each other to some degree. Outside of a conspiracy, sharing competitively sensitive information is against each firm’s individual self-interest. Indeed, each of the Defendants appear to have had strict policies in place to prevent inappropriate sharing of sensitive information.⁷⁵² Yet, it is alleged that documents in this case indicate that Defendants routinely shared that type of information. The degree of sharing at times caught Defendant personnel off guard. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁷⁵⁵

296. As discussed previously, it is alleged that Defendants are able to affect prices for beef by making changes—small or large—to their slaughter schedules.

297. [REDACTED]

[REDACTED]

⁷⁵¹ William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Halbert L. White, *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393 (2011), pp. 421-423. Available at: <https://repository.law.umich.edu/mlr/vol110/iss3/1>.

⁷⁵² CARGILL000001172-73 (Polzin Ex. 1322); National Beef-00251006-24 (Thomas Klein Ex. 1193); TYSONBEEF00001002-11 (Chambers Ex. 1018); JBS-0000773560-66 at 62.

⁷⁵³ CARGILL001399268-69 (Abrahamson Ex. 1856) at 68.

⁷⁵⁴ *Id.*

⁷⁵⁵ *Id.*

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[REDACTED]

⁷⁵⁶ [REDACTED]

⁷⁵⁷ By managing their respective slaughter volumes, Defendants “starve the box market” creating greater profits for themselves at the expense of American consumers.

298. Documents show that Defendants frequently reduced their slaughter volumes and did not run their plants at capacity even in the face of sufficient consumer demand and against their individual self-interest. As discussed below, the various mechanisms used to reduce slaughter volumes include: running their slaughter plants at reduced hours or pulling shifts; pulling Saturday kills; and operating plants at lower “chain speeds” and/or scheduling maintenance shutdowns to align with their slaughter restraints. Documents produced in this case allegedly show Defendants implemented these restraints in order to ensure they maintained their agreed-upon market shares.

III.B.5.a. Limiting Hours or pulling shifts

299. While there are numerous ways in which Defendants are able to effectuate a slaughter reduction in a given period, limitations on hours or pulling shifts were common. In March 2015, Tyson executives discussed hearing [REDACTED] Two

⁷⁵⁶ JBS-0001156042

⁷⁵⁷ CARGILL001338499.

⁷⁵⁸ TYSONBEEF03557805.

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days later, [REDACTED]
[REDACTED]

300. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 760 [REDACTED]
[REDACTED] 761

301. In September 2016, Tyson circulated information about competitor’s plant schedules which included reports of shifts being pulled: [REDACTED]
[REDACTED]
[REDACTED] 762

302. [REDACTED]
[REDACTED]
[REDACTED] 763 [REDACTED]
[REDACTED]
[REDACTED] 764

303. In the fourth quarter of 2014, documents suggest that even though JBS may have increased its total kill, its slaughter volume was less than it would have otherwise planned, in order to show JBS’s commitment to slaughter discipline. [REDACTED]

⁷⁵⁹ TYSONBEEF02066126.
⁷⁶⁰ TYSONBEEF01340139.
⁷⁶¹ TYSONBEEF00428026.
⁷⁶² TYSONBEEF00616948.
⁷⁶³ JBS-0001314343.
⁷⁶⁴ JBS-0001315370.

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[REDACTED]
[REDACTED] 765

304.

[REDACTED]
[REDACTED]
[REDACTED] 766 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 767 [REDACTED]
[REDACTED]
[REDACTED] 768

305. Around that same time period in December 2014 Donald Kieffer (Tyson) remarked internally:

[REDACTED]
[REDACTED]
[REDACTED]

306. By March 2015, a cattle futures market commentator observed that [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]

⁷⁶⁵ JBS-0002152771.
⁷⁶⁶ NationalBeef-00529915.
⁷⁶⁷ CARGILLO001403184.
⁷⁶⁸ JBS-0000502643.
⁷⁶⁹ TYSONBEEF00479028.
⁷⁷⁰ JBS-0001757522.

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[REDACTED]
[REDACTED]
[REDACTED]⁷⁷¹

III.B.5.b. Pulling Saturday Kills

307. Saturday kills are alleged to have been a key method by which Defendants restrained production and monitored adherence to the conspiracy. Documents suggest that when cattle became too expensive or beef prices began to drop, Defendants would respond by reducing Saturday kills and sharing that message with the industry. Advertising the removal of Saturday kills can be a way to signal to conspirators that it was time to restrain production.

308. In August 2014, an issue with the hot box at one JBS plant had evidently put the plant behind on its scheduled kill, prompting the regional manager to plan a Saturday shift to get back on track. [REDACTED]

[REDACTED]
[REDACTED]⁷⁷² [REDACTED]
[REDACTED]
[REDACTED]⁷⁷³

309. In March 2015, Jerry Holbrook (Tyson) emailed others at Tyson regarding run plans. [REDACTED]
[REDACTED]
[REDACTED] John Gerber had sent daily run plans for the week ending 3/14. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

⁷⁷¹ CARGILL001167800

⁷⁷² JBS-0002516077 (Byers Ex. 1371).

⁷⁷³ Deposition of Al Byers, June 26, 2024, pp. 180-181.

⁷⁷⁴ TYSONBEEF01825774.

⁷⁷⁵ TYSONBEEF00426665.

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310. In August 2016, after National decided to cut next week’s Saturday kill, the next instruction was [REDACTED]

311. [REDACTED]
[REDACTED]
[REDACTED]⁷⁷⁷ [REDACTED]
[REDACTED]
[REDACTED]⁷⁷⁸ [REDACTED]
[REDACTED]⁷⁷⁹ [REDACTED]
[REDACTED]
[REDACTED]⁷⁸⁰ [REDACTED]
[REDACTED]⁷⁸¹ [REDACTED]
[REDACTED]
[REDACTED]⁷⁸² Removing Saturday kills would “short customers 2300 boxes,” and JBS would be losing “[\$]300 per head” not slaughtered.⁷⁸³

312. [REDACTED]
[REDACTED]⁷⁸⁴

313. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁷⁸⁵

314. It is alleged that documents show that responding by reducing a processor’s planned Saturdays ratified a commitment to industry restraint. [REDACTED]

⁷⁷⁶ NationalBeef-01695856.

⁷⁷⁷ JBS-0002460801 (Rose Ex. 1824).

⁷⁷⁸ JBS-0002461510.

⁷⁷⁹ JBS-0002461510.

⁷⁸⁰ JBS-0002461510.

⁷⁸¹ JBS-0002461510.

⁷⁸² JBS-0002461510.

⁷⁸³ Deposition of Larry Rose, July 23, 2024, pp. 208-209, Ex. 1824.

⁷⁸⁴ CARGILL000171373

⁷⁸⁵ CARGILL001386937

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[REDACTED]
[REDACTED]⁷⁸⁶ [REDACTED]
[REDACTED]
[REDACTED]⁷⁸⁷

III.B.5.c. Changes in Chain Speed

315. In addition to simply reducing hours or pulling shifts entirely, Defendants have the ability to restrain beef production by reducing the “chain speeds” at a slaughter plant.⁷⁸⁸ To accomplish this reduction, [REDACTED]
[REDACTED]
[REDACTED]

316. Chain speed” refers to the processing speed at which a plant is operated. Reducing a plant’s “chain speed” would have the effect of reducing the amount of cattle that can be slaughtered and/or fabricated. While maximum line speeds are established by the USDA’s Food Safety and Inspection Service (“FSIS”),⁷⁹⁰ [REDACTED]⁷⁹¹

317. In 2014 and 2015, when cattle supplies were tight, Defendants reduced chain speeds to further restrain the supply of beef. For example, documents show that, [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] At that time, regular covered full time workers were [REDACTED]
[REDACTED]
[REDACTED]

⁷⁸⁶ Deposition of Dan Brooks, June 19, 2024, pp. 40-42.

⁷⁸⁷ [REDACTED]

⁷⁸⁸ JBS-0002176713. See also TYSONBEEF00406610; TYSONBEEF01811823.

⁷⁸⁹ JBS-0002176713.

⁷⁹⁰ 9 C.F.R. § 310.1(b)(1), 9 C.F.R. § 310.1(b)(2)(iii); JBS Supplemental Responses and Objections to All Plaintiffs’ Second Set of Interrogatories (May 24, 2024).

⁷⁹¹ Cargill's Answers to All Plaintiffs' First Set of Interrogatories to Defendants Cargill (Dec. 6, 2023) at 13; Tyson's Objections and Responses to All Plaintiffs' First Set of Interrogatories (Dec. 1, 2023) at 18; JBS Responses and Objections to Plaintiffs Second Set of Interrogatories to the JBS Defendants (Dec. 6, 2013) at 23-24; National Beef Responses and Objections to All Plaintiffs' First Set of Interrogatories (Dec. 1, 2023) at 11-12.

⁷⁹² JBS-0002176713. See also TYSONBEEF00406610; TYSONBEEF01811823.

⁷⁹³ JBS-0002176713.

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[REDACTED]⁷⁹⁴ Cattle Buyers Weekly noted that slowing the chain speeds was a way to circumvent those labor agreements: [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

318. In March 2015, Lynn Holstein (Scalehouse Coordinator at Tyson’s Denison Plant) wrote in an email titled [REDACTED] that she [REDACTED]
[REDACTED]
[REDACTED]

319. I [REDACTED]
[REDACTED]⁷⁹⁷

III.B.5.d. Plant Upkeep and Maintenance to Align with Slaughter Reductions

320. Defendants were also observed in documents scheduling plant upkeep and maintenance, which have the effect of reducing output, in order to align with slaughter reductions. For example, [REDACTED]
[REDACTED]
[REDACTED]⁷⁹⁸ Similarly, in September 2016, Cattle Buyers Weekly reported that National Beef had a cooler cleaning during a time where Defendants were reducing production.⁷⁹⁹

321. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁰⁰ [REDACTED]
[REDACTED]

⁷⁹⁴ JBS Responses and Objections to All Plaintiffs’ Sixth Set of Interrogatories to JBS Defendants, Sept. 13, 2024, p. 13.

⁷⁹⁵ NationalBeef-00279460-64 at 62.

⁷⁹⁶ TYSONBEEF02069072.

⁷⁹⁷ TYSONBEEF02101786.

⁷⁹⁸ TYSONBEEF02158474.

⁷⁹⁹ NationalBeef-00160611.

⁸⁰⁰ NationalBeef-01109397.

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[REDACTED] 801 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 802

322.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 803

323.

[REDACTED]
[REDACTED] 804 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

801 [REDACTED]

802 NationalBeef-00598747.

803 [REDACTED]

804 [REDACTED]

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[REDACTED]

[REDACTED]⁸⁰⁵ A “First Notice Day” is the first date a purchaser of a futures contract may be required to take physical delivery of the contract’s underlying commodity.⁸⁰⁶

324.

[REDACTED]

[REDACTED]⁸⁰⁷ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁰⁸

III.B.5.e. Slaughter reductions in order not to exceed market share allocation

325. Defendants were observed to celebrate slaughter reductions that were implemented in order not to exceed their market share allocation⁸⁰⁹ as signs of the industry being disciplined or showing restraint. The very use of words like “discipline” and “restraint” allegedly emphasize that effort was needed for Defendants to conform to the conspiracy in the face of demand rather than pursue their individual self-interests.

326.

[REDACTED]

[REDACTED]

[REDACTED]⁸¹⁰ [REDACTED]

[REDACTED]⁸¹¹ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸¹²

⁸⁰⁵ *Id.*

⁸⁰⁶ CME Group, “About Listings,” accessed Sept. 25, 2024, <https://www.cmegroup.com/trading/about-listings.html>.

⁸⁰⁷ [REDACTED]

⁸⁰⁸ JBS-0000053402.

⁸⁰⁹ William E. Kovacic, Robert C. Marshall, Leslie M. Marx & Halbert L. White, *Plus Factors and Agreement in Antitrust Law*, 110 MICH. L. REV. 393 (2011), pp. 421-423. Available at: <https://repository.law.umich.edu/mlr/vol110/iss3/1>.

⁸¹⁰ NationalBeef-00004859.

⁸¹¹ CARGILL001172634.

⁸¹² JBS-0001336320.

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[REDACTED]

Contemporaneous statements by Defendants indicate that they were killing slightly below the available cattle supplies in June 2015.⁸¹⁵ [REDACTED]

[REDACTED]

327.

[REDACTED]

328.

[REDACTED]

329.

[REDACTED]

⁸¹³ JBS-0000302632 (Rupp Ex. 2094).

⁸¹⁴ CARGILL000185443.

⁸¹⁵ Peterson-CB-00022559.

⁸¹⁶ CARGILL001169049.

⁸¹⁷ JBS-0000165586 (emphasis original).

⁸¹⁸ JBS-0000167217.

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[REDACTED] ⁸¹⁹ [REDACTED]

[REDACTED] ⁸²⁰

330.

[REDACTED]

[REDACTED] ⁸²¹ In October 2018, Monte Lowe and Tim Klein (National Beef) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] ⁸²³

III.B.5.f. *Communicating about and Coordinating on Slaughter Plans*

331. Communicating about and coordinating on slaughter plans is a central part of the alleged conspiracy. Because of the close linkage between price and output for commodity-like products like beef, adjusting slaughter volume, Defendants could directly and quickly influence the cutout price—the weighted average price of beef—that prevailed in the market. Reductions to slaughter—“pulling kills”—will lead to higher boxed beef prices, while increases in slaughter will lead to lower box beef prices. Voluminous evidence shows that Defendants routinely shared information about their slaughter intentions, either directly with each other or with industry participants who could be relied on to pass it along. In the sections below, I discuss (in chronological fashion) numerous instances of Defendants discussing and implementing cuts to beef production during the Class Period, as well as scores of instances of monitoring and sharing competitively sensitive information.

⁸¹⁹ NationalBeef-00005585 (Timothy Klein Ex. 2043); NationalBeef-00212033 (Wagner Ex. 1463).

⁸²⁰ NationalBeef-01700170.

⁸²¹ NationalBeef-00431080.

⁸²² NationalBeef-00545859.

⁸²³ JBS-0001254925.

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III.B.5.f.(1) 2014 - 2016

332. [REDACTED]⁸²⁴ while [REDACTED]
 [REDACTED]⁸²⁵ [REDACTED]
 [REDACTED]⁸²⁶ While low cattle supplies were a background factor, an analyst expressed confusion at industry production cuts despite strong margins.⁸²⁷ [REDACTED]
 [REDACTED]
 [REDACTED]
 [REDACTED]⁸²⁹

333. At the beginning of July 2014, Tyson, JBS, and Cargill allegedly reduced production while communicating and monitoring each other’s actions.⁸³⁰ [REDACTED]

⁸²⁴ JBS-0001882105 [REDACTED]
 [REDACTED] JBS-0001646933-35 at 35 [REDACTED] JBS-0000420189.

⁸²⁵ See CARGILL000857363 ([REDACTED]); CARGILL000629099 (noting “[REDACTED]”).

⁸²⁶ JBS-0001906210-11 at 11; See also JBS-0001730298 & JBS-0001730299 [REDACTED]

⁸²⁷ TYSONBEEF00335327.

⁸²⁸ CARGILL000622107.

⁸²⁹ NationalBeef-00214009 [REDACTED]
 NationalBeef-00214010 [REDACTED]

⁸³⁰ [REDACTED] JBS-0001302340 (internal JBS email from Al Byers to Larry Rose and others: [REDACTED])

[REDACTED] NationalBeef-00628776 [REDACTED] JBS-0000302320 [REDACTED] See also JBS-0000302333; NationalBeef-00321930; TYSONBEEF01840156; TYSONBEEF00424919; TYSONBEEF00476366; JBS-0001302439; JBS-0001350538; JBS-0000302855; JBS-0001191238; CARGILL001324634; CARGILL001341910-11.

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[REDACTED]

[REDACTED] 831 [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 832 [REDACTED] 833 A JBS Pricing employee wrote on July 29th, “[REDACTED] [REDACTED]!!”⁸³⁴ Retailers started passing on prices to consumers. [REDACTED]

[REDACTED] 835 [REDACTED]

[REDACTED]

[REDACTED] 836 [REDACTED]

[REDACTED] 837

334. As July turned into August, Defendants commented on the persistent benefit of reduced kills.

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 838 [REDACTED]

[REDACTED] 839

⁸³¹ JBS-0001302439.

⁸³² CARGILL001383724 [REDACTED] See also TYSONBEEF01901888; NationalBeef-01697714 [REDACTED] TYSONBEEF01259274

⁸³³ JBS-0000499935 [REDACTED] [REDACTED] JBS-0000087926 [REDACTED]; CARGILL001362197-269.

⁸³⁴ JBS-0001883403. See also JBS-0001475491; JBS-0001597452-53 at 52.

⁸³⁵ CARGILL001288332.

⁸³⁶ [REDACTED]

⁸³⁷ CARGILL001305838.

⁸³⁸ CARGILL001338499-501 at 500.

⁸³⁹ JBS-0000503008.

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335. Documents allegedly show Defendants communicating about additional cuts in late 2014. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁴⁰ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁴¹ Reilly adds at the bottom of the page, [REDACTED]

[REDACTED]⁸⁴²

336. In early to mid-March 2015, [REDACTED], resulting in a “record low” weekly kill.⁸⁴³ [REDACTED]⁸⁴⁴ Throughout the month, competitors internally noted competitors’ production cuts.⁸⁴⁵ [REDACTED]

[REDACTED]

[REDACTED]⁸⁴⁶ [REDACTED]

⁸⁴⁰ NationalBeef-00529915.

⁸⁴¹ CARGILL001403184.

⁸⁴² CARGILL001403184. See also CARGILL001380138 [REDACTED]

[REDACTED] CARGILL001294109 [REDACTED]

[REDACTED] TYSONBEEF00479028 [REDACTED]

⁸⁴³ TYSONBEEF00426665; See also, e.g., TYSONBEEF02093781; TYSONBEEF03557805 ([REDACTED])

[REDACTED] TYSONBEEF02069072 [REDACTED]

⁸⁴⁴ [REDACTED]

⁸⁴⁵ [REDACTED]

[REDACTED] (CARGILL001167800); TYSONBEEF02066126 [REDACTED]

⁸⁴⁶ JBS-0001757522.

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[REDACTED]
[REDACTED] 847
[REDACTED] 848

337. [REDACTED] 849
[REDACTED]
[REDACTED] 850
[REDACTED]
[REDACTED] 851 Defendants also communicated their intentions to third parties.⁸⁵²

338. [REDACTED]
[REDACTED]
[REDACTED] 853
[REDACTED] 854
[REDACTED]

⁸⁴⁷ JBS-0001302187.

⁸⁴⁸ JBS-0003373992; TYSONBEEF00414270 ([REDACTED])

CARGILL001950020

⁸⁴⁹ JBS-0000167218

JBS-0002423162

JBS-0002519065

[REDACTED]; TYSONBEEF00465670 (indicating that Tyson was interested in determining whether other processors were maintain a reduced schedule);

⁸⁵⁰ JBS-0000167383

⁸⁵¹ See JBS-0001336413; JBS-0001302491; JBS-0000303668; TYSONBEEF00345633; TYSONBEEF02080334.

⁸⁵² NationalBeef-00511888; Peterson-CB-00022121. [REDACTED]

[REDACTED] See also TYSONBEEF00348585 (indicating that Tyson received competitor plant utilization plans in advance from Colorado Beef);

⁸⁵³ NationalBeef-00004859.

⁸⁵⁴ CARGILL001172634; CARGILL001187985 [REDACTED]

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a [REDACTED]
[REDACTED]⁸⁵⁵ Evidence shows that Tyson was aware of cuts by JBS, National Beef, and Cargill.⁸⁵⁶

339. Tyson signaled these production cuts and their intention not to pay higher cattle prices. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁵⁷ At the same time, [REDACTED]⁸⁵⁸ Documents also show that [REDACTED].⁸⁵⁹
[REDACTED]⁸⁶⁰ While cattle supplies were not high at this time, statements by Defendants [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁶²

⁸⁵⁵ JBS-0001336320.
⁸⁵⁶ TYSONBEEF00348585. See also TYSONBEEF01633782 (indicating that Tyson was aware of National Beef’s kill plans/intentions).
⁸⁵⁷ TYSONBEEF01340139; see also TYSONBEEF00428026 [REDACTED]
⁸⁵⁸ CARGILL000185443; TYSONBEEF01224770.
⁸⁵⁹ JBS-0001302422.
⁸⁶⁰ JBS-0000302632.
⁸⁶¹ [REDACTED] Peterson-CB-00022559 [REDACTED]
⁸⁶² CARGILL001169049.

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340. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁶³

341. The effect of starving the box market is higher prices paid by consumers.⁸⁶⁴ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁶⁶ [REDACTED]
[REDACTED]
[REDACTED]⁸⁶⁷ Documents from late June suggest Lowe was correct.⁸⁶⁸

342. Evidence allegedly indicates that margins began to erode somewhat by early 2016, and Defendants began discussing additional cuts to improve margins. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁶⁹ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁷⁰ Absent an agreement, there is no competitive basis for Lowe to share this type of

⁸⁶³ JBS-0000167217.

⁸⁶⁴ TYSONBEEF00637006 (“[d]ramatically lower kills during the month of June, largely led by Tyson, (222,000 head vs 2014) helped stop the erosion and eventual appreciation of the cut-out.”).

⁸⁶⁵ [REDACTED]
⁸⁶⁶ [REDACTED]

⁸⁶⁷ NationalBeef-00419886.

⁸⁶⁸ JBS-0002149327 [REDACTED] JBS-0003379763 [REDACTED]

⁸⁶⁹ [REDACTED]

⁸⁷⁰ NationalBeef-00419143.

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forward-looking information with an industry conduit like Fish. More communications of this nature continued in February.⁸⁷¹ Other Defendants also discussed reductions to kills in this period for themselves and each other.⁸⁷²

343. Defendants’ discussions about kill cuts, sharing information, and monitoring each other continued into the fall of 2016.⁸⁷³ [REDACTED]

[REDACTED]

[REDACTED]⁸⁷⁴ [REDACTED]

[REDACTED]

[REDACTED]⁸⁷⁵ [REDACTED]

[REDACTED]

[REDACTED]⁸⁷⁶ [REDACTED]

[REDACTED]

[REDACTED]⁸⁷⁷

344. Once again, the result of the Defendants’ actions was an increase in margin. Indeed, [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁷⁸ Thus, the Defendants’ earlier capacity reductions, combined

⁸⁷¹ NationalBeef-00439091 [REDACTED]
[REDACTED]. See also NationalBeef-00005585; NationalBeef-00212033; NationalBeef-01700170; NationalBeef-00546838.

⁸⁷² JBS-0003362423; TYSONBEEF00451750 (“ [REDACTED]”
JBS-0000187539 (“ [REDACTED]”
[REDACTED] TYSONBEEF01426402 (“ [REDACTED]”
[REDACTED] . See also JBS-0003362440
TYSONBEEF01227933 [REDACTED]

⁸⁷³ TYSONBEEF00616948 (Tyson possessing information about each Defendants’ kill plans); JBS-0000648682; TYSONBEEF01227362 (Tyson in possession of information about JBS’s plans); NationalBeef-01109397; TYSONBEEF01717993; NationalBeef-00308732; NationalBeef-01695870

⁸⁷⁴ NationalBeef-00222960; NationalBeef-00425772; NationalBeef-00598747; NationalBeef-00222734; NationalBeef-00222732; NationalBeef-00439091; NationalBeef-00546838; [REDACTED]

[REDACTED]

⁸⁷⁵ [REDACTED]

⁸⁷⁶ [REDACTED]

⁸⁷⁷ [REDACTED]

⁸⁷⁸ CARGILL001342528.

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with a lack of investment in additional capacity, would mean that inflated margins for Defendants at the expense of the rest of the supply chain and beef production and pricing for customers.

III.B.5.f.(2) 2017 - 2019

345. Coordination and sharing of competitively sensitive information continued during 2017, 2018, and 2019 as Defendants’ profit margins continued to grow with more rounds of kill reductions.⁸⁷⁹ [REDACTED]

[REDACTED]⁸⁸⁰ [REDACTED]

[REDACTED].⁸⁸¹ An internal Cargill e-mail from Brian Carroll to employees in early 2017 states that “[REDACTED]

[REDACTED]

[REDACTED]⁸⁸² [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]⁸⁸³

346. [REDACTED]

[REDACTED]

[REDACTED]⁸⁸⁴

⁸⁷⁹ See, e.g., CARGILL001256227; CARGILL000520280; CARGILL000520282; CARGILL001255885; JBS-0000667684; JBS-0000174239; NationalBeef-00556727; JBS-0001303560; TYSONBEEF01209894; [REDACTED]

⁸⁸⁰ JBS-0003361013.

⁸⁸¹ CARGILL000525877. The communication references a “Smith” associated with Tyson without further identification.

⁸⁸² CARGILL001387148.

⁸⁸³ JBS-0001734188.

⁸⁸⁴ NationalBeef-00212517; NationalBeef-00422773; NationalBeef-00211819; NationalBeef-00211834; [REDACTED] NationalBeef-00563067; NationalBeef-00474225; NationalBeef-00434796. This exchange continued in 2018, as well. See NationalBeef-00417949; [REDACTED]

[REDACTED] NationalBeef-00209046; NationalBeef-00597671; NationalBeef-00417838; NationalBeef-00420467 [REDACTED]

[REDACTED] NationalBeef-00557802; NationalBeef-00417107; [REDACTED] NationalBeef-00426272.

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joined in on production cuts with a reduction of 8,000 head.⁸⁹⁴ Other Defendants reduced kills at the same time, including JBS pulling all Saturdays in December.⁸⁹⁵

350. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]⁸⁹⁶

351. [REDACTED]
[REDACTED]
[REDACTED]⁸⁹⁷ [REDACTED]
[REDACTED]⁸⁹⁸ [REDACTED]
[REDACTED]
[REDACTED]

⁸⁹⁹ In a March update, Cattle Buyers Weekly pointed out the effect of the cuts—higher prices for beef: “Packers continue to hold a line on fed cattle and boxed beef prices by limiting the number of cattle they process and thus the amount of beef they produce. ... Boxed beef cutout values continue to hold up but only because of reduced production. ... This meant the overall cutout advanced \$13.74 in three weeks and the Choice cutout advanced \$14.63.”⁹⁰⁰

352. [REDACTED]
[REDACTED]⁹⁰¹ The cuts would continue in April, however. At National Beef, [REDACTED]
[REDACTED]
[REDACTED]

⁸⁹⁴ NationalBeef-00002537; [REDACTED]
⁸⁹⁵ NationalBeef-00002537; [REDACTED] NationalBeef-00434796.
⁸⁹⁶ JBS-0000305573.
⁸⁹⁷ CARGILL001949174; JBS-0001285083.
⁸⁹⁸ NationalBeef-00012659; *see also* NationalBeef-00431084 [REDACTED]
⁸⁹⁹ CARGILL000113566.
⁹⁰⁰ NationalBeef-00009002;*see also* TYSONBEEF03626340.
⁹⁰¹ [REDACTED]
⁹⁰² NationalBeef-00012679, NationalBeef-00012680, & NationalBeef-00012681. *See also* NationalBeef-00201526.

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354. Cargill was also cutting production during July 2018, despite a desire to see more kills.⁹¹⁵

[REDACTED]
[REDACTED] 916 [REDACTED]
[REDACTED]
[REDACTED] 917

355. Numerous internal Defendant documents suggest sharing of information about production cuts (despite record margins), utilization, and plant idlings or closures in the late summer and fall of 2018.⁹¹⁸ [REDACTED]

[REDACTED] 919 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 920 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 921

356. [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED] 922 [REDACTED]
[REDACTED]
[REDACTED] 923

⁹¹⁵ CARGILL001120331; CARGILL001383972

⁹¹⁶ CARGILL001951010.

⁹¹⁷ NationalBeef-01746659.

⁹¹⁸ TYSONBEEF01236898; JBS-0000508861; JBS-0000053402; JBS-0000179190; JBS-0000180759; JBS-0002667348 (indicating that JBS was aware of Cargill’s utilization, though the reduction in this instance appears to have been caused by a flooding event).

⁹¹⁹ NationalBeef-00012739 [REDACTED]
[REDACTED] NationalBeef-00208269.

⁹²⁰ JBS-0000107962.

⁹²¹ JBS-0001628775; JBS-0000509441; JBS-0000509442.

⁹²² CARGILL000161972; CARGILL000161967.

⁹²³ NationalBeef-00558908.

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[REDACTED]
[REDACTED] 935

359.

[REDACTED]
[REDACTED]
[REDACTED] 936 [REDACTED]
[REDACTED]
[REDACTED]

360.

In August 2019, a fire at Tyson’s Holcomb facility caused disruption in the industry that ultimately led to extraordinarily high margins—on top of what were already record-high margins. [REDACTED]

[REDACTED] 937 [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 938

361.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] 939 [REDACTED]
[REDACTED]
[REDACTED] 940 [REDACTED]
[REDACTED] 941

⁹³⁵ JBS-0001258510, referring to Joslin (Tyson) and Schuler [sic] (Cargill) plants.

⁹³⁶ NationalBeef-01166228.

⁹³⁷ CARGILL001951123.

⁹³⁸ CARGILL001951123.

⁹³⁹ JBS-0003291255.

⁹⁴⁰ JBS-0003291255.

⁹⁴¹ JBS-0003286360.

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362. Outside of the context of a conspiracy, there is no basis for sharing competitively sensitive information like slaughter intentions, reductions, and other information like that discussed above. In a competitive environment, each processor would seek to hide and protect that information from its competitors in order to maintain a competitive advantage and earn market share and the others’ expense. Yet, evidence shows Defendants freely and openly sharing information in ways that serve no competitively beneficial purpose outside of a conspiracy.

III.B.5.g. Enforcement of the Alleged Conspiracy

III.B.5.g.(1) Use of USDA Reporting to Monitor

363. Economic literature on cartels explains that an effective enforcement regime can help stabilize a conspiracy.⁹⁴² Although conspirators can maximize their collective long-term profits by abiding by the conspiratorial agreement, an individual firm might be able maximize its short-term profits by cheating on the agreement.⁹⁴³ In order to prevent actual (or perceived) cheating from destabilizing the conspiratorial arrangement, a conspiracy may implement an enforcement mechanism.⁹⁴⁴ An enforcement mechanism performs two tasks: detecting cheating and penalizing cheating.⁹⁴⁵ Accordingly, conspiracies attempt to detect cheating with monitoring mechanisms that observe the prices charged or individual output. When conspirators are able to have confidence in their enforcement regime, the risk that a conspirator defects from the conspiracy as a defensive measure because one fears a co-conspirator is cheating can be reduced.⁹⁴⁶

⁹⁴² Pindyck R. and Rubinfeld D., “Microeconomics,” Eighth Edition, Pearson 2013 at p. 478 (Regarding the conditions necessary for cartel success, “a stable cartel organization must be formed whose members agree on price and production levels and then adhere to that agreement.”); Dennis Carlton, and Jeffrey Perloff, *Modern Industrial Organization*, 4th ed. (Chicago, IL: Addison Wesley, 2005), pp. 136-141 (Noting that the use of fixed market shares are an effective form of enforcement because they are highly visible and eliminate the incentive to cheat).

⁹⁴³ Leslie R., Christopher, “The Factor/Element Distinction in Antitrust Litigation,” *William & Nary Law Review* 64, no. 3 (2022-2023): 604-606, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=3970&context=wmlr> at 605-606.

⁹⁴⁴ Leslie R., Christopher, “The Factor/Element Distinction in Antitrust Litigation,” *William & Nary Law Review* 64, no. 3 (2022-2023): 604-606, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=3970&context=wmlr> at 605-606.

⁹⁴⁵ Leslie R., Christopher, “The Factor/Element Distinction in Antitrust Litigation,” *William & Nary Law Review* 64, no. 3 (2022-2023): 604-606, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=3970&context=wmlr> at 605-606.

⁹⁴⁶ Leslie R., Christopher, “The Factor/Element Distinction in Antitrust Litigation,” *William & Nary Law Review* 64, no. 3 (2022-2023): 604-606, <https://scholarship.law.wm.edu/cgi/viewcontent.cgi?article=3970&context=wmlr> at 605-606.

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364. Documents in this case show that Defendants utilized publicly available USDA slaughter reports as means of monitoring competitors, and allegedly to monitor their conspiracy.
365. The Livestock Mandatory Reporting Act (“LMR”) requires that federally inspected packing plants that annually process an average of 125,000 of cattle to report detailed information to USDA.⁹⁴⁷ The USDA slaughter reports were published with the industry-wide fed cattle volumes on daily and weekly frequencies.⁹⁴⁸ USDA publishes 24 daily and 20 weekly cattle reports each week such as the Daily Livestock Slaughter Under Federal Inspection report, the weekly Actual Slaughter Under Federal Inspection report, and the National Weekly Cattle And Beef Summary report.⁹⁴⁹ USDA provides data for the current slaughter week, the period beginning Monday, and ending Sunday, of the week in which a reporting day occurs, as well as the prior week, the Monday through Sunday prior to a reporting day.⁹⁵⁰ Documents and testimony received in this case reflect that the Defendants thought USDA data was “very robust and reliable.”⁹⁵¹
366. Because USDA reports were comprehensive, regularly published, and the data was trusted, Defendants converted these tools meant to provide transparency to the industry into a way to ratify each other’s continued participation in the conspiracy and detect cheating. Using their knowledge of the industry, third party publications, and, as discussed in **Section III.B.5.f**, direct communications between processors, the industry-wide USDA slaughter data was able to be used as a basis for determining competitors’ individual plant outputs and to confirm information shared amongst Defendants.
367. Saturday kills were also covered by USDA. Each week on Friday afternoon, a member of the USDA would call the cattle procurement department of each reporting processor and ask if

⁹⁴⁷ USDA, “User’s Guide to USDA’s LMR Cattle Price Reports,” accessed Sep. 24, 2024, <https://www.ams.usda.gov/sites/default/files/media/LMRCattleUserGuide.pdf>

⁹⁴⁸ USDA, “User’s Guide to USDA’s LMR Cattle Price Reports,” accessed Sep. 24, 2024, <https://www.ams.usda.gov/sites/default/files/media/LMRCattleUserGuide.pdf>.

⁹⁴⁹ USDA, “User’s Guide to USDA’s LMR Cattle Price Reports,” accessed Sep. 24, 2024, <https://www.ams.usda.gov/sites/default/files/media/LMRCattleUserGuide.pdf>.

⁹⁵⁰ USDA, “User’s Guide to USDA’s LMR Cattle Price Reports,” accessed Sep. 24, 2024, <https://www.ams.usda.gov/sites/default/files/media/LMRCattleUserGuide.pdf>; The numbers initially provided were best available estimates, then the USDA would republish the numbers one week and two weeks after the fact with final results. Deposition of Scott Sorensen, May 13, 2024, pp. 177-178.

⁹⁵¹ Deposition of Brian Highfill, Mar. 12, 2024, p. 79.

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they planned to run any shifts on Saturday.⁹⁵² USDA would call back on the following Monday to confirm whether the shifts had been run as planned and subsequently would issue an updated report.⁹⁵³ As discussed above in **Section III.B.5.b**, the scheduling of Saturday kills played an important role in implementing supply restraints, and as discussed below in **Section III.B.5.g.2.(b)**, Saturday kills could also be used to prevent or punish cheating by “overkilling” in positive margin environments.

III.B.5.g.(2) Other Observed Specific Methods of Monitoring and Enforcement

368. Documents produced in this case suggest that Defendants had the ability to punish competitors who violated the alleged agreement. [REDACTED]

[REDACTED]⁹⁵⁴

Similarly, in March 2018, Tyson executives explicitly questioned: [REDACTED]

[REDACTED]

[REDACTED] Mechanisms for punishing competitors included (1) bidding up cattle prices to send a signal to a violating competitor to cut slaughter volume, or (2) adding (or threatening to add) Saturdays when competitors scheduled their own Saturday shifts or otherwise overkilled.

III.B.5.g.2.(a) “Bidding up cattle prices”

369. Documents suggest processors use cattle discipline to punish a competitor for overkilling, increasing capacity, or running on Saturdays. [REDACTED]

[REDACTED]

[REDACTED]⁹⁵⁶ [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

⁹⁵² Deposition of Scott Sorensen, May 13, 2024, pp. 177-178.

⁹⁵³ Deposition of Scott Sorensen, May 13, 2024, pp. 177-178.

⁹⁵⁴ NationalBeef-00004142.

⁹⁵⁵ TYSONBEEF00671077-78 at 78.

⁹⁵⁶ CARGILL001315010.

⁹⁵⁷ JBS-0002827403.

⁹⁵⁸ JBS-0002515923; Deposition of Al Byers, June 26, 2024, pp. 203-206.

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[REDACTED] 966 [REDACTED]
 [REDACTED]
 [REDACTED]

III.C. Empirical Analyses are Consistent with Plaintiffs’ Allegations

III.C.1. *Defendant Margins During the Class Period Were Historically High*

373. Documents and evidence indicate that Defendants’ margins skyrocketed during the Class Period, dramatically exceeding historical levels. Growth in Defendants’ margins during the Class Period is consistent with the alleged conspiracy—indeed, increasing profits is the expected purpose and outcome of any anticompetitive scheme. In recent years, as Defendants’ profits have reached previously unseen heights, Defendants’ executives have been asked to give testimony before Congress.⁹⁶⁹ Given the timing of these proceedings, much of the focus in these testimonies is on the COVID-19 period, when profit margins reached levels even higher than during the Class Period. In some of these statements, Defendants executives have attempted to address the profit margins and explain the sources or causes of them.⁹⁷⁰ However, the explanations Defendants’ executives have offered in apology for these margins are flawed and misleading.
374. In some of the written testimonies, Defendant executives included their own estimates of the processors’ margins over the past several decades. For example, in Shane Miller’s testimony, he provided the chart shown below, which depicts the margins per head of cattle earned at different levels of the supply chain:

⁹⁶⁶ NationalBeef-00004142; *see* Deposition of Timothy Klein, Aug. 7, 2024, pp. 147-149.

⁹⁶⁷ Deposition of Timothy Klein, Aug. 7, 2024, p. 326.

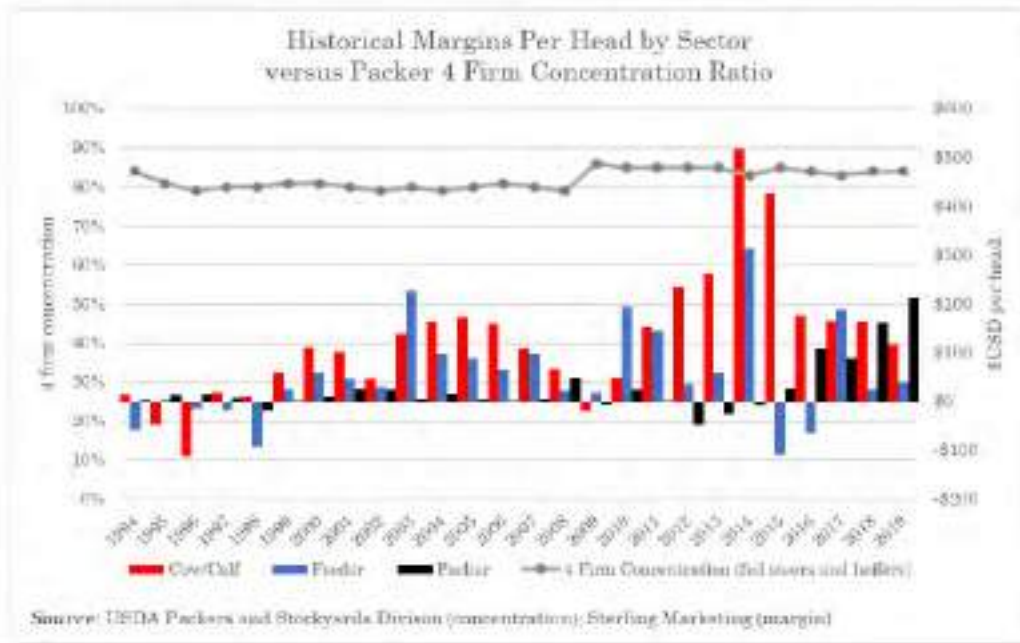
⁹⁶⁸ Deposition of Timothy Klein, Aug. 7, 2024, p. 150.

⁹⁶⁹ Written Testimony of Shane Miller Group President, Tyson Fresh Meats, before the U.S. Senate Committee on the Judiciary, July 28, 2021 (“Miller Congressional Testimony”); Written Testimony of Donnie King, President and Chief Executive Officer, Tyson Foods, before the U.S. House of Representatives, Committee on Agriculture, April 27, 2022 (“King Congressional Testimony”); Written Testimony of Tim Klein, Chief Executive Officer, National Beef Packing Company, LLC, before the U.S. House of Representatives, Committee on Agriculture, April 27, 2022 (“Klein Congressional Testimony”); Testimony of Dave MacLennan, Chief Executive Officer, Cargill, before the U.S. House of Representatives, Committee on Agriculture, April 27, 2022 (“MacLennan Congressional Testimony”); Opening Statement of Tim Schellpeper, Chief Executive Officer, JBS USA, before the U.S. House of Representatives, Committee on Agriculture, April 27, 2022 (“Schellpeper Congressional Testimony”).

⁹⁷⁰ Miller Congressional Testimony; King Congressional Testimony; Klein Congressional Testimony; Schellpeper Congressional Testimony.

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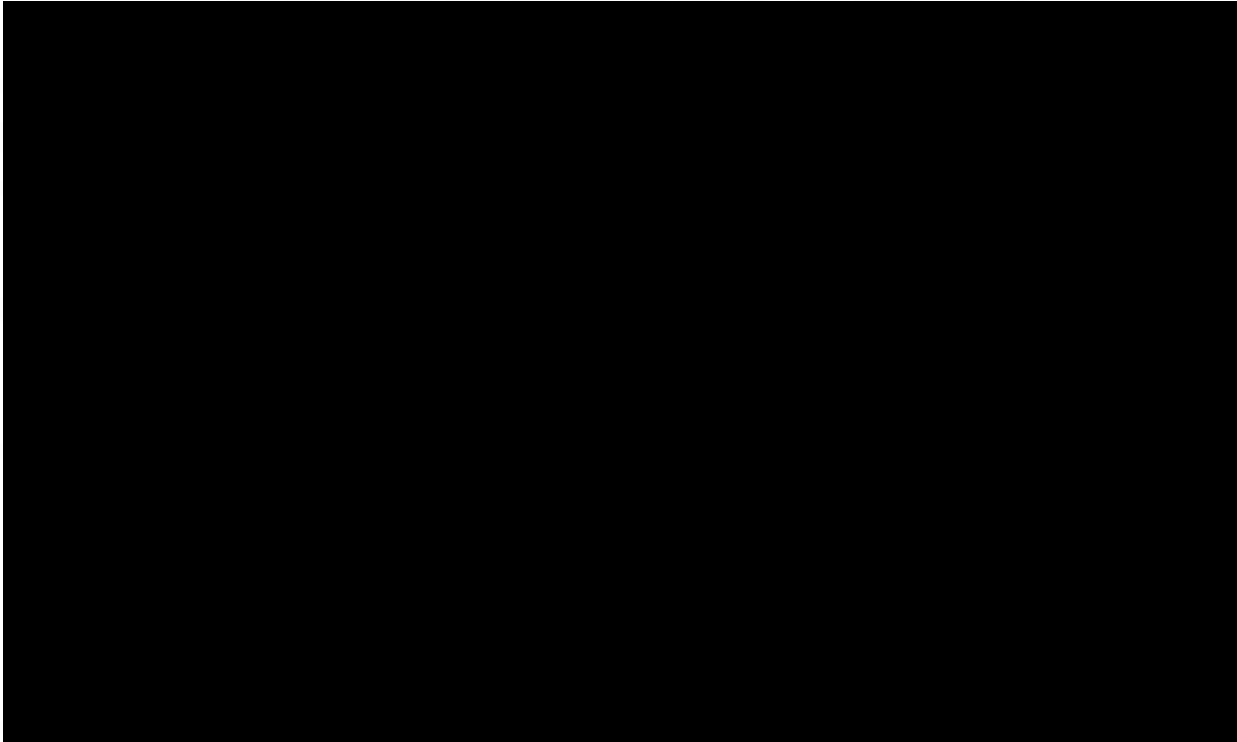
Figure 29. Historical Margins per Head of Cattle (Tyson)⁹⁷¹



375. Tyson’s Donnie King included the same image when testifying for the US House of Representatives Committee on Agriculture in April 2022.⁹⁷² Similarly, Tim Klein, testifying on behalf of National Beef, included a chart that is highly similar, differing only by the specific years of coverage depicted:

⁹⁷¹ Miller Congressional Testimony.

⁹⁷² King Congressional Testimony.

*Confidential – Attorneys’ Eyes Only***Figure 30. Historical Margins per Head of Cattle (National Beef)⁹⁷³**

376. There are several notable features of these depictions of industry margins. First, there is some degree of cyclicality to processor margins, as well as the margins of other cattle operations. This is unsurprising, given the cattle cycle.⁹⁷⁴ Second, the processors’ margins have been historically very low, but typically positive. This is consistent with the deposition of Tim Klein, who testified that a “healthy” margin for the beef processing industry would be between 2% and 5%.⁹⁷⁵ Indeed, per Mr. Klein’s and Mr. Miller’s charts, in only one year (prior to the Class Period) did processor margins ever exceed \$50 per head. While processors had negative margins in 2012-2014, only two of the preceding 18 years (going back to 1994) appear to show losses. In other words, the beef processing industry has largely been profitable, albeit modestly. Third, the margins depicted encompass multiple cattle cycles and a very long period of varying levels of capacity and utilization rates. In other words, these charts give a decades-long picture of what “normal” profits look like in the beef processing industry, despite periods of ups and downs, macroeconomic changes, climate fluctuations, and the rising and falling of the cattle

⁹⁷³ Klein Congressional Testimony.

⁹⁷⁴ In his deposition testimony, [REDACTED]

[REDACTED] 7, 2024, pp. 152-153.

⁹⁷⁵ Deposition of Timothy Klein, August 7, 2024, pp. 30-31.

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cycle. Thus, it is against these multiple decades of relatively consistent outcomes that the margins earned during the Class Period immediately find contrast. As shown in Defendants’ own charts, after reversing modestly in 2015, margins increased significantly in 2016 to levels not seen in any prior year. While margins declined slightly in 2017, they remained at a level previously unheard of (until 2016), then grew to new heights again in 2018, and yet again in 2019—exceeding \$200 per head. While not part of the Class Period, profits continued to grow, doubling and then tripling to over \$600 per head in 2021.

377. Defendants’ executives attempted to explain away these abnormal margins in their written testimonies, but their explanations are lacking in the context of this litigation. Specifically, Shane Miller testified that the spread was nothing more than a “temporary” “system shock brought on by the COVID-19 pandemic.”⁹⁷⁶ Miller goes on to blame supply chain difficulties, workforce absenteeism, and health and safety protocols, along with the cattle cycle, for the processors’ margins.⁹⁷⁷ Donnie King attempted to cite the same factors in his testimony, as did Tim Klein (National Beef) and Tim Schellpeper (JBS).⁹⁷⁸ While these factors may indeed play a role in Defendants’ profits starting in early 2020, they cannot explain the then-historic profits of the 2015-2019 time period. A pandemic that started in 2020 has no bearing whatsoever on Tyson’s (or anyone else’s) profits in 2018.
378. In his written testimony, Tim Klein emphasized the role that capacity reductions have played in improving margins. Specifically, Klein argued that the cattle supply has been “trending lower for 40 years” and reductions in slaughter capacity had not kept up, leading to long-term low profit margins.⁹⁷⁹ Although he was speaking primarily about the COVID-19 pandemic period, Klein argued that the dramatic increase in margins was nothing more than the predictable outcome of the higher utilization that flows from right-sized capacity and increased cattle supply.⁹⁸⁰ Klein’s reasoning is flawed, and the images he utilized in his testimony are misleading.

⁹⁷⁶ Miller Congressional Testimony.

⁹⁷⁷ Miller Congressional Testimony.

⁹⁷⁸ King Congressional Testimony; Klein Congressional Testimony; Schellpeper Congressional Testimony.

⁹⁷⁹ Klein Congressional Testimony.

⁹⁸⁰ Klein Congressional Testimony.

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379. First, as noted previously, the increase in cattle supply was expected and anticipated by Defendants.⁹⁸¹ While National and the other Defendants were hit hard by the combination of the cattle cycle’s liquidation phase and drought conditions, those conditions were temporary. Tim Klein testified in his deposition that the high margins in 2017 and 2018 were “historically” healthy, but quickly pointed out that “we were on the good side of the cattle cycle. [The margins] were negative in ’14 and ’15.”⁹⁸² However, Defendants’ depictions of margins span multiple cattle cycles—both the good and bad sides—and at no point were the margins close to what was achieved during the Class Period.

380. Second, data on Defendants’ historical utilization indicates that high rates of utilization do not equate to high margins. [REDACTED]

[REDACTED]⁹⁸³ However, as shown previously in **Figure 29**, the margins in those years remained modest. This is inconsistent with the notion that the industry’s capacity grossly exceeded its needs and that collectively shuttering multiple facilities, and idling or restricting others from producing beef, was a necessary response to temporary conditions. Equally important, even if shutting a facility due to a poor location makes sense, Defendants similarly did not engage in expansive activities to offset closures during the Class Period. For example, while National Beef may have legitimately struggled with cattle supplies in Brawley, California, it did not make any attempt to recapture the market share it lost by expanding capacity elsewhere (despite assuring its financier that it would do so).⁹⁸⁴ I note that constructing

⁹⁸¹ TYSONBEEF00319186; TYSONBEEF01746977; JBS-0002278907; JBS-0002278596 at 98; CARGILL000435270 at 71; NationalBeef-00062140.

⁹⁸² Deposition of Timothy Klein, August 7, 2024, pp. 152-153.

⁹⁸³ CARGILL000151334 [REDACTED]

[REDACTED] See JBS-0003362198.

⁹⁸⁴ NationalBeef-00001603 at 604 (“

[REDACTED]). See also Klein Deposition, pp. 94-98; NationalBeef-00257572 ([REDACTED]).

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a new facility is not the only way to expand capacity. As David Holloway testified, it would also be possible to “recover capacity” “by reopening plants that had closed.”⁹⁸⁵

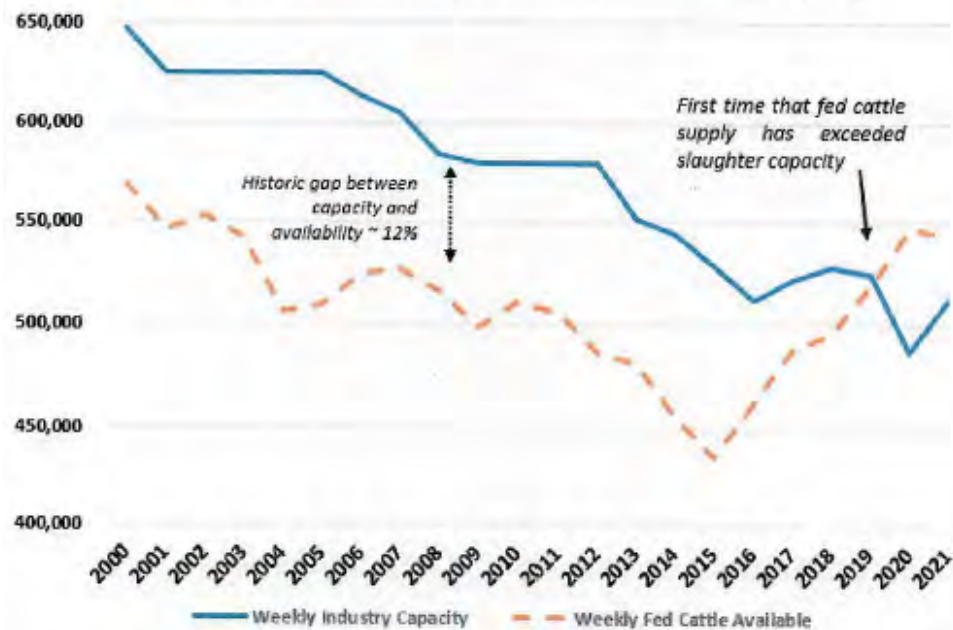
381. Third, Klein’s depiction of excess capacity before Congress is misleading. Specifically, using **Figure 31** below, Klein depicts a persistently large gap between “Fed Cattle Availability” and “Industry-wide Weekly Capacity.” As shown, the gap narrows and widens slightly over time in accordance with the cattle cycle itself. While the cattle supply did, in fact, dip sharply in 2014-2015, the capacity-supply gap in that period is not as large as some other years in the same chart. Again, given the historically consistent margins discussed previously, this highlights the historic—but anomalous and temporary—losses just prior to the Class Period. More importantly, however, Klein’s image dramatically overstates the Capacity-Supply gap in general, because he is depicting the capacity for all commercial beef and the supply for only fed cattle. In other words, Klein is using slaughter capacity for fed cattle, dairy cows, and culled breeding stock combined and juxtaposing it with supplies for fed cattle alone. Documents in this case show that cow slaughter capacity accounts for approximately [REDACTED] beef processing capacity.⁹⁸⁶ In other words, the “historic gap” in Klein’s chart is as much as 20% too large. This undermines the credibility of Defendants’ claims of excessive capacity and brings into focus the potential effect of the alleged conspiracy to inhibit capacity expansion during the Class Period.

⁹⁸⁵ Deposition of David Holloway, April 4, 2024, p. 177.

⁹⁸⁶ See backup materials; CARGILL001801960.

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Figure 31. Fed Cattle Availability vs Industry-Wide Weekly Capacity⁹⁸⁷



Source: NBP estimate based on estimated 5-day week capacity; adjusted for disruptions and inefficiencies related to 2019 fire and COVID-19 pandemic

382. Fourth, even if the chart appropriately reflected the relevant capacities and supply, the chart appears to contradict Klein’s assertion that cattle supplies have declined but that capacity reductions have not kept up. Klein’s chart shows a general downward trend in fed cattle, and a similar downward trend in capacity. The capacity reductions in 2013-2014 were an acceleration of decline from 2011 that (as shown in Klein’s image) noticeably closed the gap once the cattle cycle turned in 2014. Again, Defendants knew the cattle cycle would turn, and thus knew that the existing capacity gap would shrink on its own, without further reductions. Indeed, documents from this case indicate that industry observers were surprised that capacity did not increase in response to growth in the cattle supply.⁹⁸⁸

⁹⁸⁷ Klein Congressional Testimony.

⁹⁸⁸ See, e.g., CARGILL001342528

NationalBeef-00417838

*Confidential – Attorneys’ Eyes Only***III.C.2. Direct Overcharge Regression Results are Consistent with Inflated Prices Due to the Alleged Conspiracy**

383. Other things equal, reducing or restraining the supply of beef products (relative to what they would have been) will lead to artificially increased prices for beef purchasers and increase processors’ profitability on sales of beef. Documents produced in this case are consistent with this economic expectation. As discussed previously, Defendants routinely lowered slaughter plans to restrain the amount of beef that was being produced and entering the marketplace. Over the longer-term, Defendants significantly reduced slaughter capacity—and hobbled others from growing it. Due to the economic incentives faced by calf and feeder operations, Defendants’ reductions in and restraint of capacity lead to reduced supply of beef throughout the Class Period.
384. In Section V below, I explain the multiple regression methodology that I use to estimate overcharges associated with the alleged collusion and present the results of my regression analyses. These models estimate the artificial inflation in the prices of beef products to direct purchasers from January 2015 through December 2019. Because of the widely understood relationship between the supply of beef and the price of beef products, my finding that there were widespread price increases that cannot be explained by supply and demand factors during the alleged collusion is further evidence consistent with the conclusion that the alleged collusion artificially restricted the supply of beef products.

IV. ALL OR NEARLY ALL DIRECT PURCHASERS WERE IMPACTED BY DEFENDANTS’ ALLEGED MISCONDUCT

385. In the sections above, I concluded that the structure and characteristics of the beef industry made it conducive to the formation and maintenance of the alleged collusion. Another part of my assignment in this case is to determine whether the alleged collusion would likely have affected or impacted all (or nearly all) customers.
386. As an initial matter, the same market characteristics that facilitate the initiation and success of the alleged collusion also tend to prevent individual customers from avoiding impact from the alleged collusion. Because Defendants and alleged Co-Conspirators dominate the beef industry, customers cannot generally switch to non-Defendants in response to higher prices. Even if customers could switch, because of the commodity nature of beef products and

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Defendants’ combined market power, market prices depend on total industry supply, such that prices charged by non-Defendants would still be artificially inflated due to the alleged collusion. Likewise, due to their collective dominance of the existing market, as well as the barriers to entry, customers could not avoid impact by turning to non-Defendant suppliers or new entrants.

387. In addition, my conclusion of impact on all or nearly all direct purchasers is based on a) my analysis of the market-based pricing that is typical for direct purchasers; b) evidence that customers on short-term fixed price contracts would also be impacted; and c) my quantitative analysis of beef prices showing that prices moved together within a category across geographic locations, Defendants, and individual direct purchasers.
388. In the sections below, I discuss both economic and empirical evidence that support the conclusion that the alleged collusion would have affected the prices paid by all (or nearly all) direct purchasers. In later sections of this report, I show that these effects would be passed on to all (or nearly all) members of the Consumer IPP Class.

IV.A. The Widespread Use of Market-Based Pricing is Consistent with Common Impact

389. Because cutout prices are used as reference prices for wholesale cuts, Defendants are motivated to maintain high cutout values. Other things equal, higher cutout values lead to higher spreads (or margins). Numerous documents produced in this case demonstrate Defendants’ continual emphasis on maintaining strong cutout values.⁹⁸⁹

⁹⁸⁹ See, e.g., TYSONBEEF00451878 (“The only thing that will change the cutout and the drop is less product – next six weeks.”); TYSONBEEF00414270 (“These kills are keeping us from seeing real trouble. We got the higher money on the cutout only because of reductions this week.”); JBS-0000502055

CARGILL001280909

CARGILL001187985

JBS-0000167772

NationalBeef-01101344

JBS-0000502783

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390. Because cutout values are, effectively, a weighted average price, they are determined by market supply and demand. As such, changes in cattle slaughter, capacity utilization, or any other factor that affects beef supply, will have an effect on cutout price determination. Further, cutout prices are adjusted at least weekly, so the effect of changes in beef supply can be transmitted to the market place quickly.
391. As a corollary to the preceding point, because cutout prices are determined by, and apply to, the broader market, individual production decisions can and do affect the prices received by other firms in the marketplace. This creates an incentive for processors to jointly reduce output—if processors jointly reduce output, they all benefit from increased cutout prices. If any individual Defendant reduces output, it will still affect the cutout price, but other Defendants will benefit from the increased price without reducing their own output—and thus they will gain market share. By focusing on market share maintenance, Defendants policed each other’s production levels to ensure that no individual was overproducing.
392. Importantly, the use of cutout values has implications for common impact as well. Because cutout values are used as reference prices across the market, increases or decreases in the cutout will affect wholesale prices across the market, regardless of who the buyer is. For example, if Tyson reduces its slaughter in one week and thus reduces the supply of beef it produces, that change will be incorporated into the market-wide cutout prices, not just those paid by Tyson’s specific customers. Thus, if an anticompetitive scheme artificially increases cutout values, it will necessarily increase wholesale beef prices as well on a market-wide basis. Thus, wholesale customers would be unable to avoid the impact of the supply restraint.
393. Naturally, retail prices are a function of wholesale prices, and therefore they will also be affected by the increase in cutout values. Thus, by inflating cutout values Defendants cause higher retail prices for beef on a market-wide basis.

TYSONBEEF01895092

JBS-0000303668

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394. I note that the economics of cutout prices and how they relate to other market prices does not mean that all customers pay identical prices for similar cuts of beef at either the wholesale or retail level. Indeed, different direct purchasers may negotiate different pricing at different points in time or from different suppliers. However, the critical point is that such pricing is customarily a function of the cutout value. Thus, even if direct purchasers pay different “multiples” of the cutout value, they would all still be affected when the cutout value changes. This again has implications for common impact: the fact that different customers pay different prices does not mean that some prices are affected by the alleged conspiracy and some are not—it simply means that they were able to negotiate different multiples of the cutout prices that serve as the starting or reference point.

395. [REDACTED]
[REDACTED] .⁹⁹⁰ [REDACTED]
[REDACTED]
[REDACTED] .⁹⁹¹ [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] .⁹⁹² USDA cutout values are also referenced in negotiations that are not based on a pricing formula. For example, [REDACTED] had a practice of engaging in [REDACTED] “bid-and-quibble” negotiations to determine pricing [REDACTED] from

⁹⁹⁰ See, e.g., CARGILL000907570-7581 ([REDACTED] CARGILL001913803-809 [REDACTED]), JBS-0002220013-19 [REDACTED], JBS-0000392465-478 [REDACTED], JBS-0001527173-180 [REDACTED], JBS-0001882599-JBS-2612 (executed Marketing Agreement with Associated Wholesale Grocers), JBS-0003120856-859 ([REDACTED]), TYSONBEEF02546068-6072 [REDACTED], TYSONBEEF03141215-218 ([REDACTED]), NationalBeef-00956213-220 [REDACTED], NationalBeef-00298725-727 [REDACTED], NationalBeef-00297703-704 [REDACTED]

⁹⁹¹ See, e.g., JBS-0000392465-478 at 472-74, CARGILL000907570-81 at 74, NationalBeef-00298725-727, TYSONBEEF03141217.

⁹⁹² JBS-0002220013-19 (executed [REDACTED] [REDACTED]).

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delivery, with no volume commitments and negotiations that referenced [REDACTED]
[REDACTED]⁹⁹³ [REDACTED] procurement practices changed in [REDACTED] when it
transitioned to soliciting pre-committed volume with a pricing formula based on USDA cutout
values that are locked in two weeks prior to delivery based on the USDA of the week prior.⁹⁹⁴
Therefore, the evidence indicates that cutout values influence retail pricing, regardless of
whether it is specifically tied to a formula.

IV.B. Other Contracting Mechanisms are Also Consistent with Common Impact

396. Many purchase agreements for beef cover multiple time periods such that, within the contract
term, the price for beef will vary based on changes in the cutout value. Such products would
obviously be affected by a scheme that leads to artificially higher cutout values for beef.
However, other contracts may involve a single fixed price over the duration of the contract.⁹⁹⁵
First, despite the fact that the price is fixed at the time of the contract, the price is nevertheless
based on the then-current market values or then-anticipated future market values, which are
affected by the alleged conspiracy.⁹⁹⁶ For instance, [REDACTED]
[REDACTED]
[REDACTED] Second, to the extent that the contracted price was

993 [REDACTED]
994 [REDACTED]
995 See, e.g., CARGILL001934545 (2012-05-06)
[REDACTED]
[REDACTED]; JBS-0003124552-JBS-0003124556 (January 2014
CHOICE BNLS TRI TIP- Product Code 21854 on a fixed
price.”); JBS-0001176911
[REDACTED]
996 See, e.g., JBS-0001700116 ([REDACTED]
[REDACTED]; CARGILL000840894
[REDACTED]
997 [REDACTED] Deposition of Shannon Grassl, April 25,
2024, pp. 120-124.

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negotiated prior to the alleged conspiracy, any subsequent contract or renewal would be updated to reflect then-current market values.

397. Thus, at the wholesale level, the only instance in which a direct purchaser could avoid impact through a fixed-price contract would be if a) the contract was negotiated prior to the alleged conspiracy, b) the contract was not renewed or updated during the alleged conspiracy, and c) the purchaser never bought any other beef product upon expiration of the initial contract. I am unaware of any instances of such a fact pattern taking place for any direct purchaser, let alone more than a trivial or *de minimus* number of them.
398. The same reasoning applies at the retail level. In order for an indirect purchaser to avoid impact, the same conditions about the timing of the direct purchaser negotiations/contracting would have to apply, and the indirect purchaser would have to purchase beef exclusively from that direct purchaser during that specific window of time. Such contrived scenarios are extremely unlikely, and certainly would not exist in more than a trivial or *de minimus* fashion.

IV.C. Correlation Analysis Demonstrates That Prices Move Together Across Defendants, Geographic Locations and Customers

399. In this subsection, I show that transaction prices within a part category move together across Defendants; that prices within a part category move together across geographic locations; and finally, that prices within a part category move together across individual customers. This empirical analysis is further evidence that no individual direct purchaser could have avoided the impact of the alleged collusion.
400. For the price analyses that I perform in this section, I rely on price indices that I create econometrically rather than weighted average prices.⁹⁹⁸ The advantage of these price indices is that it allows me to control for changes in products and/or customers over time.
401. The Pearson correlation coefficient (or simply “correlation coefficient”, often represented by the Greek letter rho (“ ρ ”)) is a measure of the degree of linear association between two

⁹⁹⁸ I took the following steps to create the indices: For each primal category, after limiting data based on availability in base period, I ran a series of separate multiple regression analyses with the natural log of price as the dependent variable. There are two types of explanatory variables included in these regressions. First, I include a set of indicator variables that control for specific products, grade, and customers associated with each monthly observation. Second, I include indicator variables for each month from January 2010 through February 2020. The coefficients on the monthly indicator variables are then converted to the monthly values of the index.

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variables. If two variables are positively correlated, this means that they are observed to move together over time – when one variable rises, the other variable also rises. Alternatively, negatively correlated variables tend to move in opposite directions - one variable rises while the other variable falls. The correlation coefficient used to measure this observed relationship, ρ , is a standardized statistic in that it only takes on values between -1.0 to 1.0. If two variables are perfectly positively correlated, ρ would equal 1.0 and if they are perfectly negatively correlated, ρ would equal -1.0. A high correlation between two price series generally indicates that the two price series are affected by the same economic forces. It is not generally expected for two series to move in perfect lockstep fashion even when the series are affected by the same economic forces.

402. Correlation coefficients provide valuable information about the marketplace and help inform other areas of analysis. I have conducted analysis of correlation in beef prices across different economically meaningful dimensions in order to assist in reaching conclusions about the likelihood of widespread or common impact of the alleged collusion.⁹⁹⁹
403. In the figures below, I plot Defendants’ prices over time, as well as tables describing the calculated correlation coefficients.¹⁰⁰⁰ This is done separately for the four beef primal categories. The plots of prices over time show that Defendants’ prices largely track one another, suggesting that a reasonably high degree of correlation across Defendants would be expected. As seen in the figures below, this is indeed the case, with all calculated correlation coefficients exceeding 0.9 (*i.e.*, they are highly correlated).

⁹⁹⁹ Due to the different product mix of their purchases, further processors were excluded from my correlation analyses. Since they are not part of the relevant supply chain this does not impact my conclusions regarding common impact to the Consumer IPP Class.

¹⁰⁰⁰ In these analyses, I have used each Defendants’ top 200 selling products (by quantity) for each respective primal. For example, the loin correlation table reflects the pairwise correlations between each Defendant’s price index based on their top loin products.

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Figure 32. Defendant Price Indices (Jan 2015=100)¹⁰⁰¹

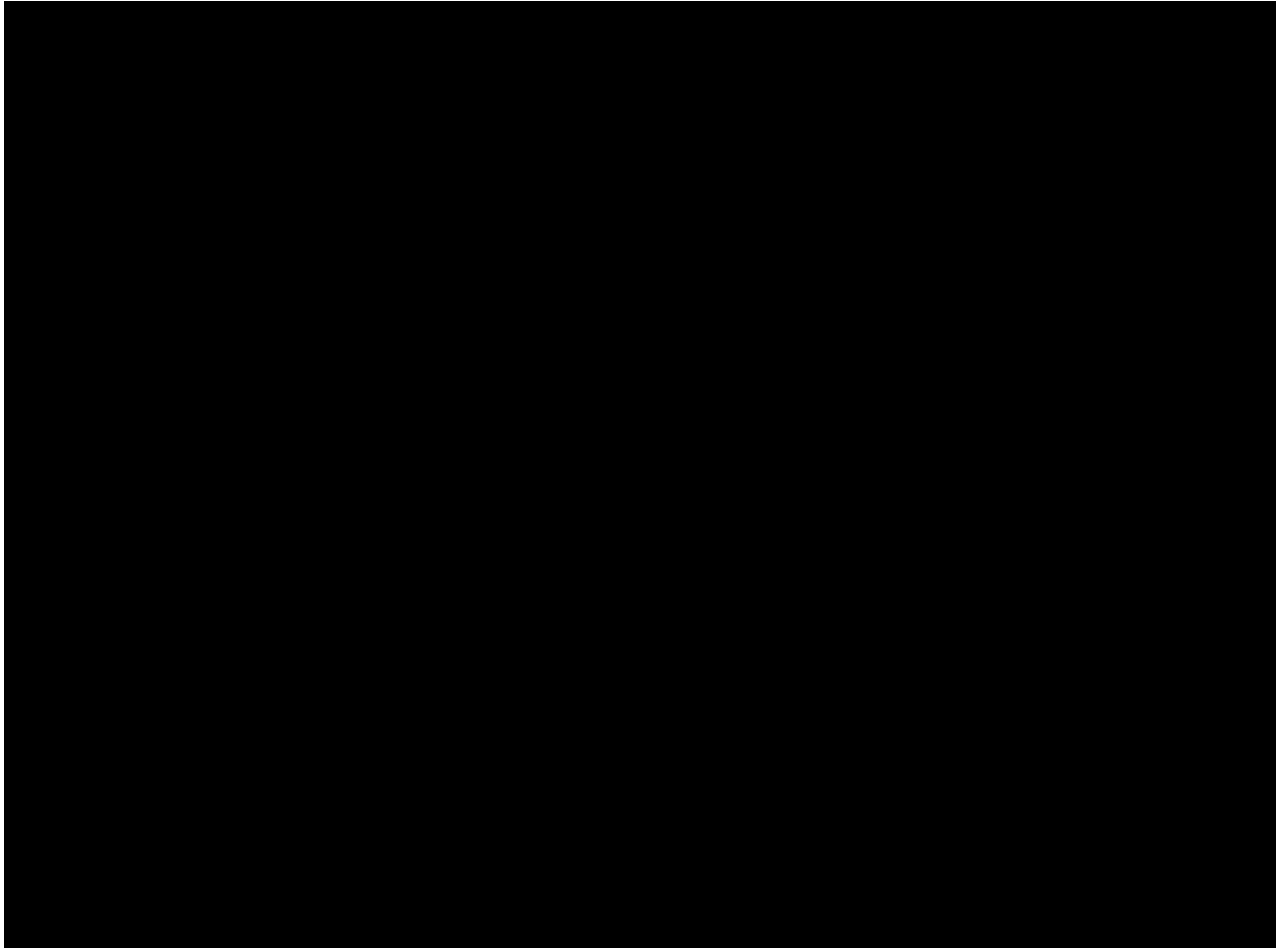


Figure 33. Defendant Price Indices Correlation¹⁰⁰²

Chuck		Loin		Rib		Round	
Count	Percent of Total	Count	Percent of Total	Count	Percent of Total	Count	Percent of Total
[Redacted]							

Note: Excludes products without sales in January 2015.

¹⁰⁰¹ Defendant transaction data. See backup production.

¹⁰⁰² Defendant transaction data. See backup production.

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404. The fact that Defendants’ prices are highly correlated with each other is empirical evidence that a cartel functioning as alleged would affect all or virtually all direct purchasers because direct purchasers would not be able to avoid the impact of collusion by switching from one Defendant to another.
405. Next, I have compared the pricing for each category of product by the state to which the beef was being shipped. Other things equal, price trends across different geographies should not be different for a commodity product like beef. However, given that Defendants are not all located in the same place, the actual prices charged will reflect differences in shipping costs. As shown, the price index for each state follows the same pattern, with prices generally rising and falling together despite differences in geography. As expected, such pricing patterns result in very high calculated correlation coefficients—once again, virtually all pairwise correlations are above 0.9, with the vast majority even higher. This further supports a finding of common impact, because it indicates that the effect of the alleged collusion would be nationwide rather than limited to any specific geographical area.¹⁰⁰³

¹⁰⁰³ That is, if there are meaningful differences in price across regions that are not explained by shipping costs, an opportunistic and savvy customer could potentially purchase (relatively) cheap products in one region and sell them in another region. The closely-related prices across regions here indicate that is an unlikely possibility, and thus suggests customers in all regions would be affected by the alleged collusion.

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Figure 34. State Specific Price Indices for Chuck Products (Jan 2015=100)¹⁰⁰⁴

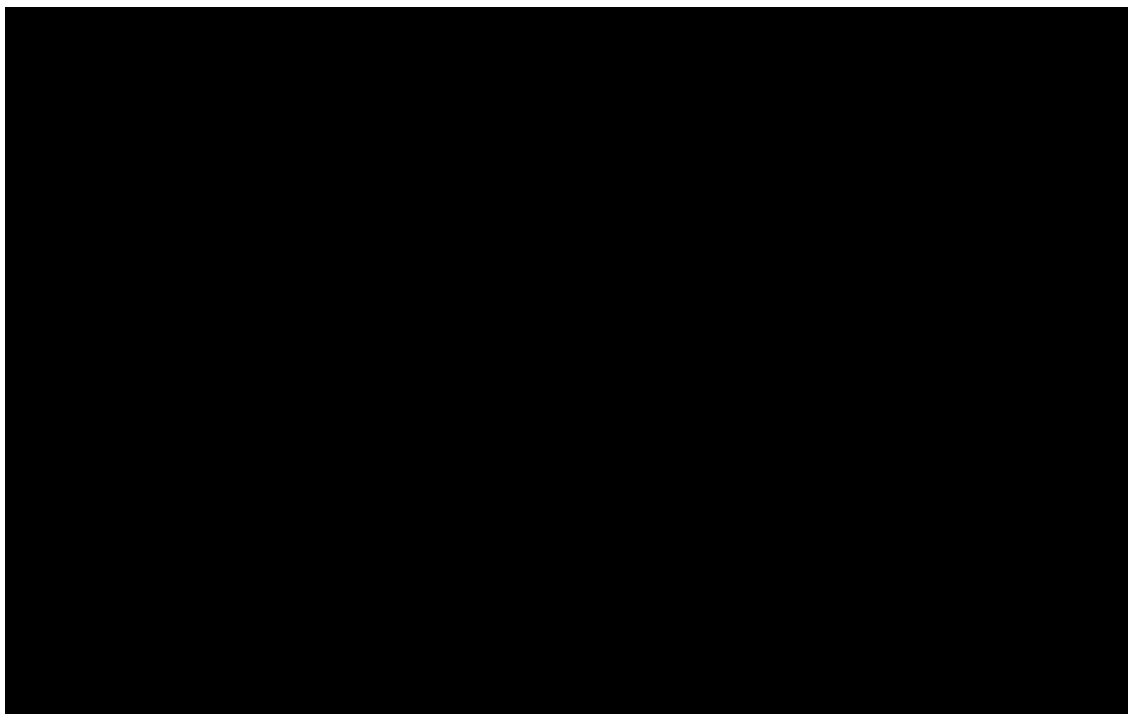
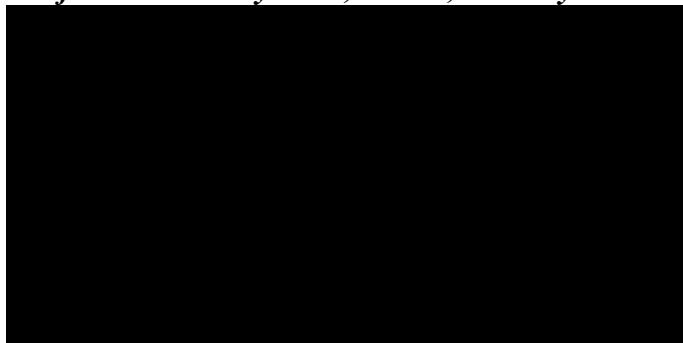


Figure 35. Correlation of Price Index by State, Chuck, January 2010-December 2019¹⁰⁰⁵



¹⁰⁰⁴ Defendant transaction data. See backup production.

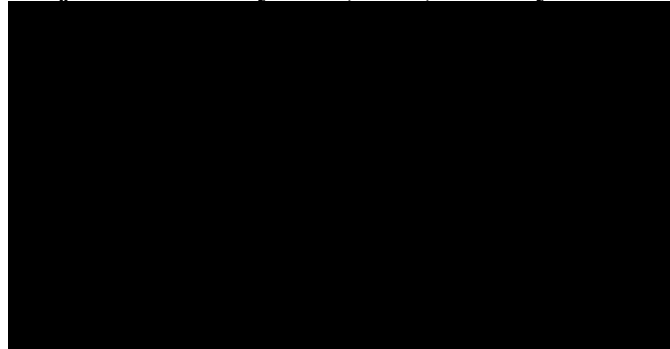
¹⁰⁰⁵ Defendant transaction data. See backup production.

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Figure 36. State Specific Price Indices for Loin Products (Jan 2015=100)¹⁰⁰⁶



Figure 37. Correlation of Price Index by State, Loin, January 2010-December 2019¹⁰⁰⁷



¹⁰⁰⁶ Defendant transaction data. See backup production.

¹⁰⁰⁷ Defendant transaction data. See backup production.

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Figure 38. State Specific Price Indices for Rib Products (Jan 2015=100)¹⁰⁰⁸

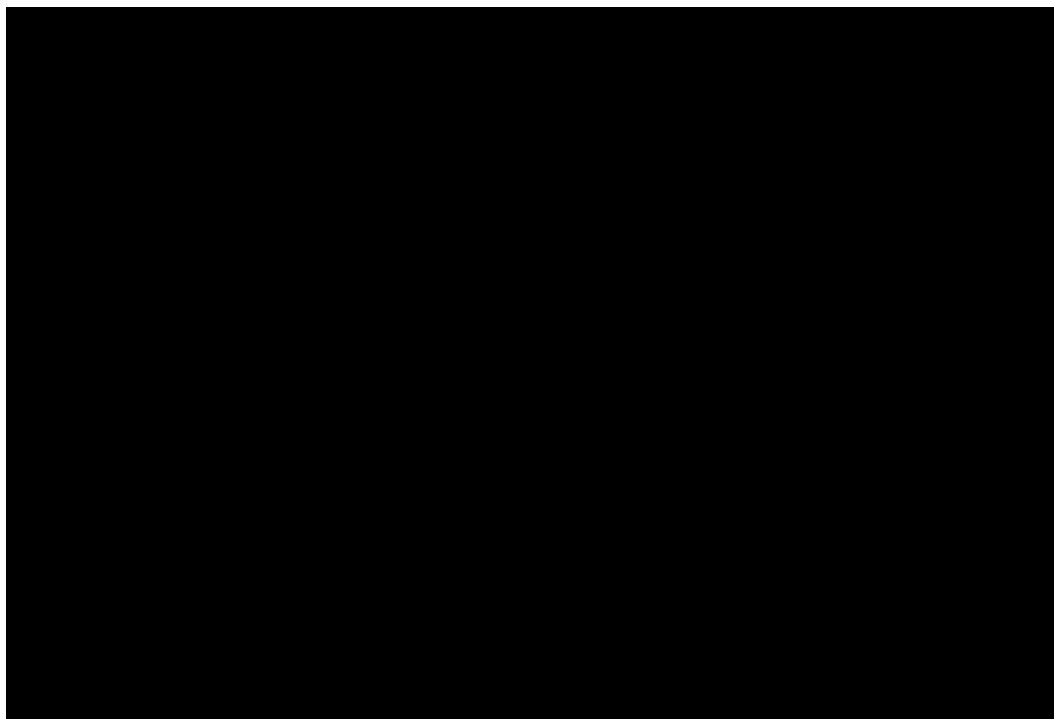
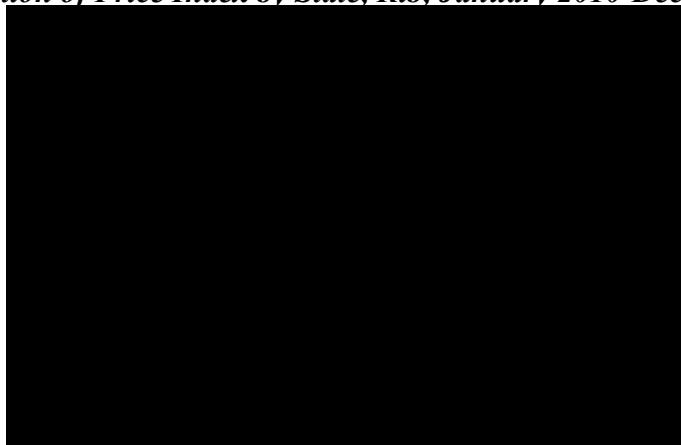


Figure 39. Correlation of Price Index by State, Rib, January 2010-December 2019¹⁰⁰⁹



¹⁰⁰⁸ Defendant transaction data. See backup production.

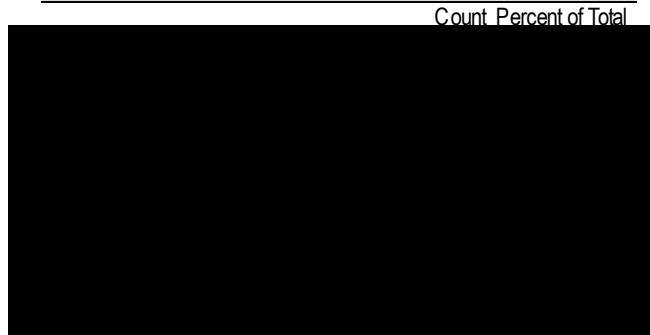
¹⁰⁰⁹ Defendant transaction data. See backup production.

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Figure 40. State Specific Price Indices for Round Products (Jan 2015=100)¹⁰¹⁰



Figure 41. Correlation of Price Index by State, Round, January 2010-December 2019¹⁰¹¹



406. Finally, I have performed the same type of analysis across different customers. Performing such micro-level analysis is more challenging because it splits the dataset into increasingly small samples, and many customers do not purchase frequently or consistently enough to generate a reliable pairwise analysis. Thus, I limited this customer-level analysis to the “top” 50 customers, where customers are ranked by sales (quantity), and products for each customer are limited to “top” 100 by sales (quantity). As seen in the figures below, the prices follow highly similar trends over time, which leads to the expectation of high correlation. As seen,

¹⁰¹⁰ Defendant transaction data. See backup production.

¹⁰¹¹ Defendant transaction data. See backup production.

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calculated correlation coefficients confirm this, with a vast majority of coefficients for the top 50 customers above 0.9 for all primal categories.

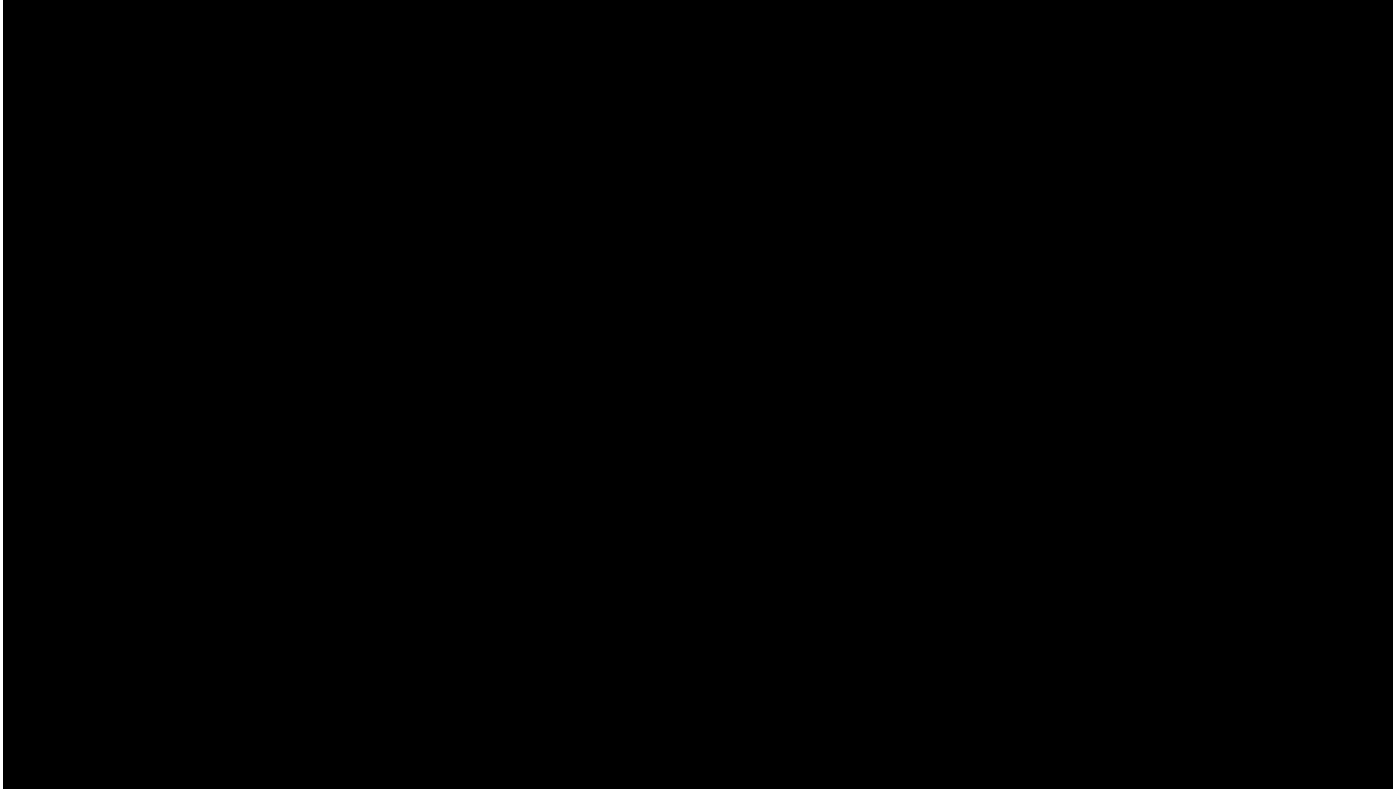
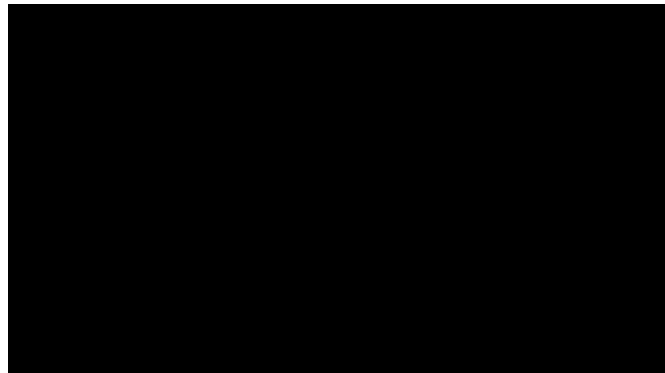


Figure 43. Correlation of Price Index by Customer for Chuck Products, January 2010-December 2019¹⁰¹³



¹⁰¹² Defendant transaction data. See backup production.

¹⁰¹³ Defendant transaction data. See backup production.

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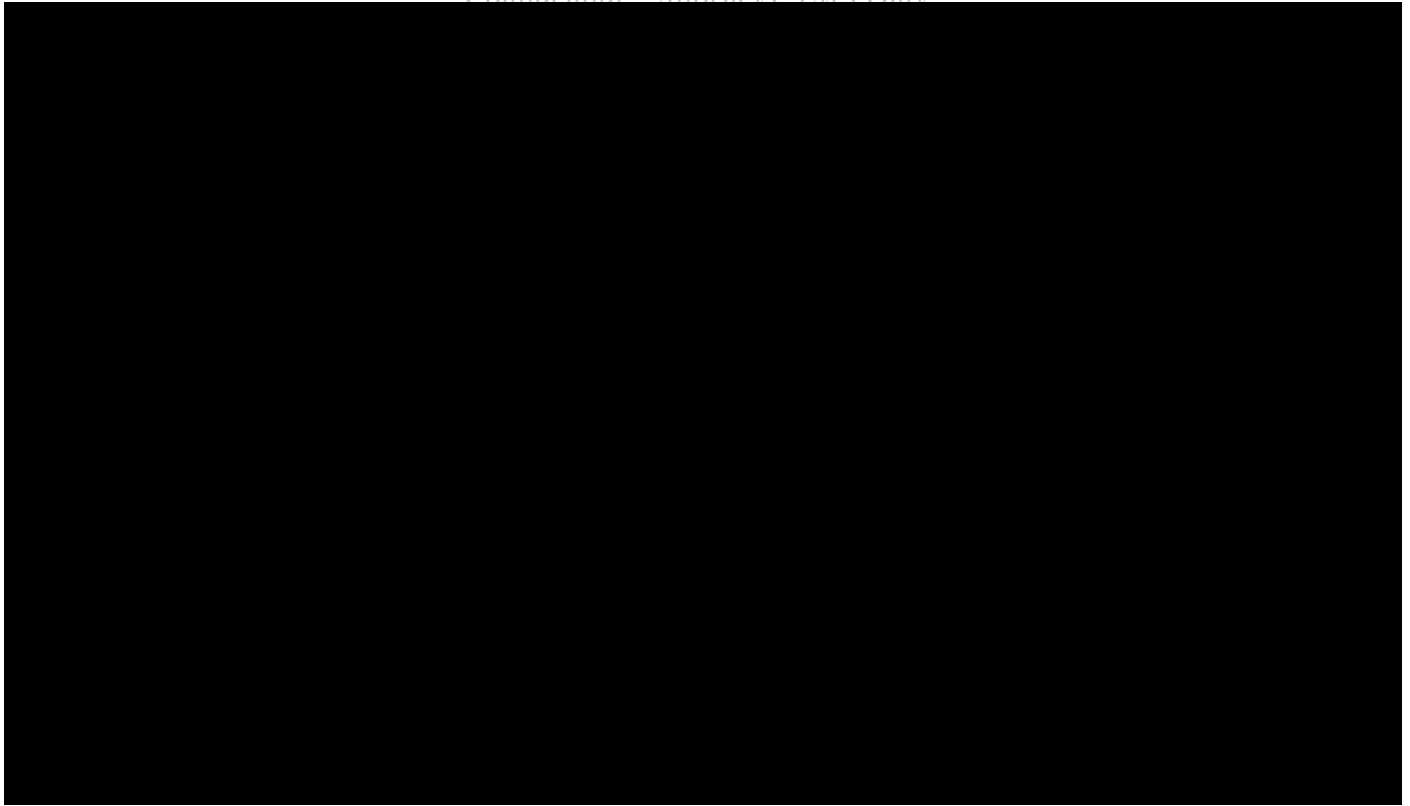


Figure 45. Correlation of Price Index by Customer for Loin Products, January 2010-December 2019¹⁰¹⁵

	Count	Percent of Total
[Redacted Table Content]		

¹⁰¹⁴ Defendant transaction data. See backup production.

¹⁰¹⁵ Defendant transaction data. See backup production.

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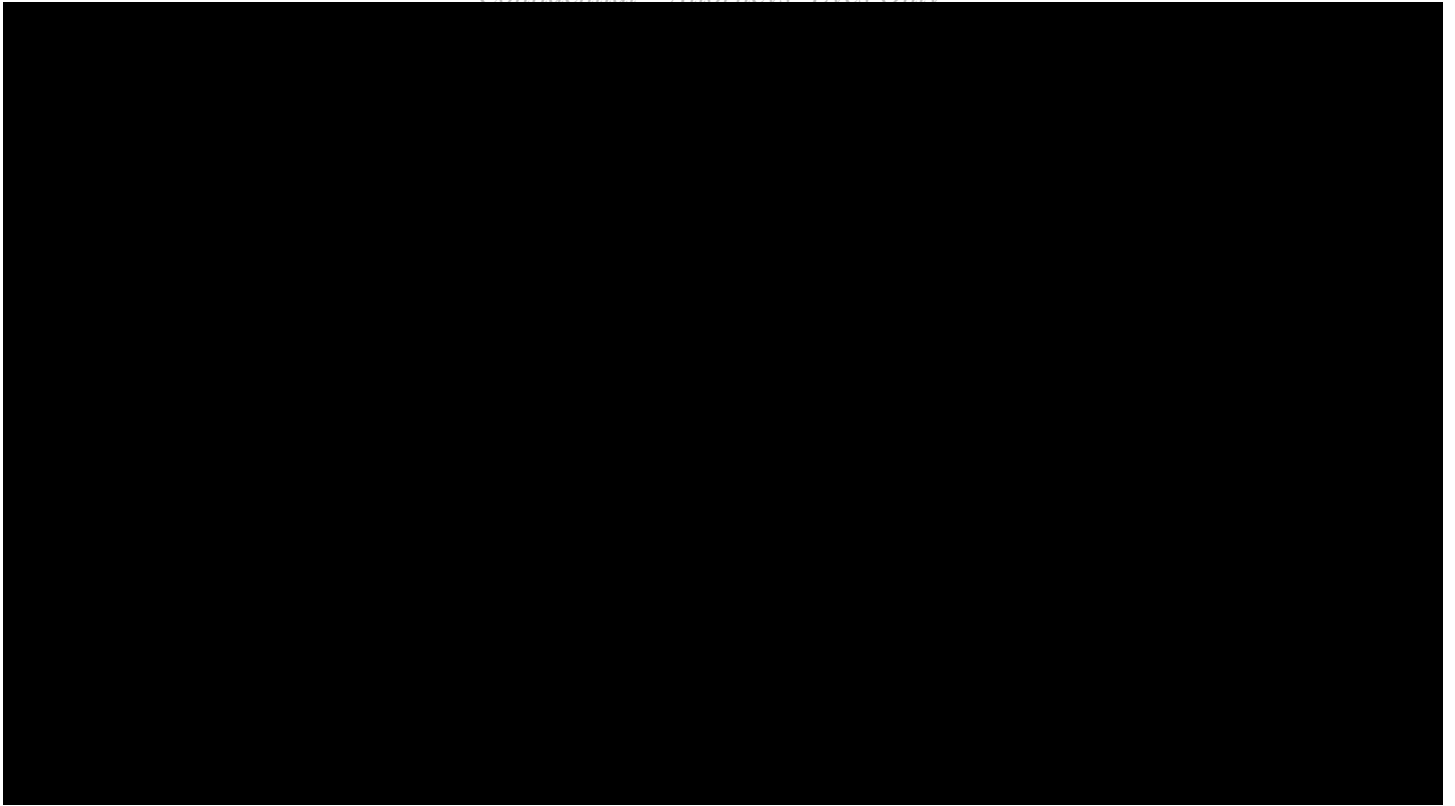


Figure 47. Correlation of Price Index by Customer for Rib Products, January 2010-December 2019¹⁰¹⁷



¹⁰¹⁶ Defendant transaction data. See backup production.

¹⁰¹⁷ Defendant transaction data. See backup production.

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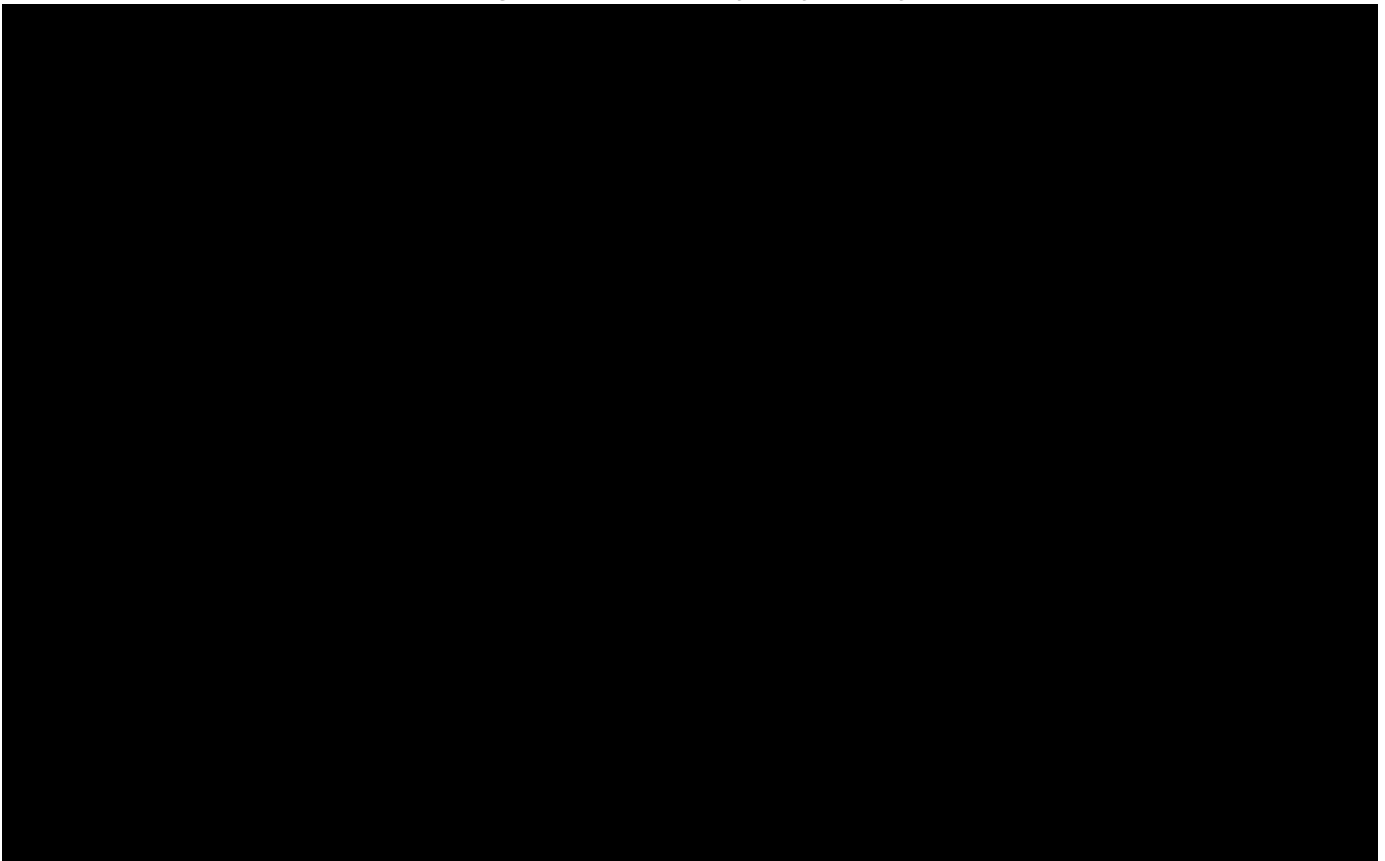
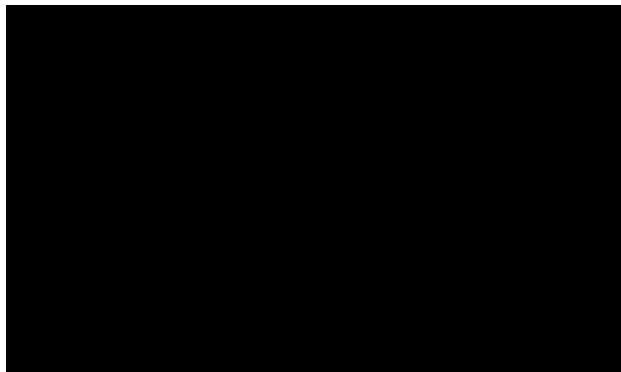


Figure 49. Correlation of Price Index by Customer for Round Products, January 2010-February 2020¹⁰¹⁹



V. DIRECT OVERCHARGE ESTIMATION

407. In the previous sections, I concluded that all or nearly all customers would be impacted by the alleged collusion in this case. This conclusion is based on my findings of a) the structural

¹⁰¹⁸ Defendant transaction data. See backup production.

¹⁰¹⁹ Defendant transaction data. See backup production.

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characteristics of the beef market that i) are conducive to the formation, monitoring, and enforcement of the alleged collusion, and ii) would have made it difficult for any customer to avoid the impact of the alleged collusion; b) the widespread use of market-based formulas in setting prices; and c) the high correlation in prices across Defendants, geographic locations, and individual customers. In this section, I explain the methodology I use to estimate overcharges on direct purchases of beef and present the results of my analysis. In a subsequent section, I address the issue of pass-through to indirect purchasers.

408. I measure overcharges at the direct purchaser level using multiple regression analysis, a well-established approach to measuring impact and estimating damages in horizontal conspiracy cases.¹⁰²⁰ This approach is both feasible and reliable due to the availability of sufficient data to execute a methodology that a) appropriately and rigorously analyzes the question of whether Defendants’ alleged collusion impacted direct purchasers, and b) yields overcharge estimates that can be employed for the computation of Class-wide damages for indirect purchasers.

V.A. Background on Multiple Regression

409. Multiple regression analysis is a statistical tool used by economists to investigate and test hypotheses about statistical relationships between observed outcomes and factors thought to explain those observed outcomes. The variable that measures the observed outcomes is referred to as the “dependent variable” (often referred to as the “left-hand side” variable, due to its location in the regression equation). The “independent variables” (also called “explanatory” or “right-hand side” variables) measure factors that explain or affect the dependent variable. More specifically, regression analysis attempts to estimate the statistical relationships between a dependent variable and a set of key explanatory variables of interest, while controlling for other factors that theoretically affect the dependent variable. For example, a researcher may be interested in testing whether ethnicity plays a role in determining personal income. To test such a theory, the researcher may specify an equation with annual earnings as the dependent variable and ethnicity as an independent variable. Because there are other factors that affect income, the regression equation would also include other explanatory variables, such as education level,

¹⁰²⁰ See Jonathan Baker and Daniel Rubinfeld, “Empirical Methods in Antitrust Litigation: Review and Critique,” *American Law and Economics Review* 1, no. 1 (1999): pp. 391–393; Daniel Rubinfeld, “Reference Guide on Multiple Regression,” in *Reference Manual on Scientific Evidence*, 3rd ed., 2011 (“Rubinfeld”), pp. 303–357.

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experience, age, gender, and industry. In this way, the regression model can isolate, or separate, the effects of these other variables from the effect of ethnicity, which allows the researcher to test the hypothesis of interest more precisely. The use of statistical analyses, such as regression, to explain economic relationships is referred to as “econometrics.” Economists and statisticians have developed numerous types of econometric models over time for use in different areas of analysis. The specification of an econometric model depends on the hypothesized or known economic relationships between the dependent and independent variables, and the availability and form of relevant and useable data (*e.g.*, are data continuous or discrete in nature; do variables have the same periodicity (*e.g.*, daily vs. monthly vs. annual observations)).

410. Developing an econometric model starts with the identification of an economic relationship to be studied. Appropriately rooted theories will guide the choice of variables to be used. In practice, data availability often guides the development of the model, because that allows the progression from concept to actual modeling and the formation of economic opinions.
411. In a regression model, the number that quantifies the estimated relationship between an explanatory (or independent) variable and the dependent variable is called a “coefficient estimate.” Coefficients indicate both the direction and the magnitude of the relationship between each explanatory variable and the dependent variable (in the below model, price), while holding other explanatory variables constant. A particular coefficient’s value estimates the extent that a change in the independent variable will cause a change in the dependent variable.¹⁰²¹ The algebraic sign of the coefficient describes whether the estimated relationship is positive (*i.e.*, the dependent and independent variables move in the same direction) or negative (*i.e.*, they move in opposite directions). Coefficient estimates are also characterized by their statistical significance. A coefficient is “statistically significant” if there is a sufficiently low probability that the estimated relationship between the explanatory and dependent variables was only found by chance. The typical dividing line between a coefficient being statistically significant or not is 5 percent, meaning that for a coefficient to be statistically significant, there is less than a 5 percent probability that the relationship is the product of chance.¹⁰²²

¹⁰²¹ See Damodar Gujarati, *Basic Econometrics*, 4th ed. (New York, NY: McGraw Hill, 2003), p. 18.

¹⁰²² See Rubinfeld, p. 320.

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412. I note that statistical significance is not the same as economic significance.¹⁰²³ The inclusion of a variable in a regression model may lead to a coefficient estimate that is statistically significant (a high level of confidence), but the coefficient itself may be very small in magnitude, such that it does not exert much influence on predicted values of the dependent variable based on the econometric model.
413. In this case, the question at hand pertains to the economic factors that affect prices paid for beef. In connection with answering that question, I have specified an econometric model to identify and quantify the effect of the alleged collusion on beef prices. The cost of cattle, which is the largest input and cost for beef, must be accounted for in a model of beef prices. However, since the demand for cattle is almost entirely derived demand for beef, that means the price of beef should influence the price of cattle. Beef and cattle prices are likely to be jointly determined, which means random shocks to the price of beef would spill over to the price of cattle. A model that uses cattle prices to explain beef prices is likely to exhibit endogeneity bias when estimated with ordinary least squares (OLS) regression.¹⁰²⁴ I solve the problem of endogeneity bias by adopting an instrumental variables approach using Two-Stage-Least-Squares (2SLS).
414. The method of instrumental variables is an essential and well-accepted tool in economic analysis, dating back to the 1928 work of Philip Wright.¹⁰²⁵ The 2SLS approach is an extension of the OLS regression model. It consists of two stages where one first runs a regression of the suspected endogenous variable on all other exogenous variables from the regression model and a set of additional exogenous variables called “instruments.” The expected value of the endogenous variable from the first stage is then used in its place in the regression model of interest. A valid instrumental variable must be uncorrelated with the error term (referred to as exogeneity), correlated with the endogenous variable (also called relevance), and excluded

¹⁰²³ David H. Kaye and David A. Freedman, “Reference Guide on Statistics,” in *Reference Manual on Scientific Evidence*, 3rd ed., 2011, pp. 211–302 at p. 252. The ABA’s monograph on econometrics discusses an example scenario in which a particular profit difference is “statistically significant” but is small enough in magnitude that it is “not substantively important” See ABA Section of Antitrust Law, *Econometrics: Legal, Practical, and Technical Issues* 414, 2nd ed., 2014, p. 15.

¹⁰²⁴ Endogeneity bias arises when one or more of the explanatory variables in a regression is correlated with the error term. See Wooldridge, J. (2020), *Introductory Econometrics: A Modern Approach*, 6th ed., Chapter 15.

¹⁰²⁵ Philip G. Wright, *The Tariff on Animal and Vegetable Oils* (New York: Macmillan, 1928).

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from the regression model (exclusion restriction).¹⁰²⁶ This final condition means that the instrument affects the dependent variable only through its relationship with the endogenous variable, which is why it is excluded from the regression model. 2SLS is a well-accepted and fundamental modelling approach and is second in popularity only to OLS for estimating linear equations in applied econometrics.

415. The regression model I created is a reduced-form model, which is commonly employed for estimating impact and damages in antitrust litigation.¹⁰²⁷ My reduced-form model expresses the solution to the underlying structural equations of quantity supplied and quantity demanded as a function of the outcome when supply and demand are set to be equal. Here, the demand equation explains a) the relationship between the quantity demanded and prices (all else equal, higher prices for beef lead to lower quantities demanded) and other changes that shift the demand curve, such as changes in DPI, and b) the relationship between quantity supplied and prices (all else equal, firms would increase the supply of beef products in response to higher prices) and other factors that shift Defendants’ supply curve, such as changes in a firm’s marginal costs. In market equilibrium, quantity demanded equals quantity supplied. Setting the supply equation and demand equation equal, quantity drops out of the equation, and these structural equations of supply and demand can be solved and “reduced” to a mathematical solution yielding a reduced-form equation in which prices are determined by the factors that shift the supply and demand curves.

V.B. Dependent Variable

416. The dependent variable in the regression model is the monthly average price paid by a particular customer for a particular product. Data for the dependent variable comes from Defendants’ transaction data. I understand that for initial data preparation purposes, the consulting firm Monument Economics Group, LLC (“MEG”) was retained jointly by counsel for the cattle class (producers), ranchers (indirect producers), DPPs, CIPPs, and Consumer IPPs. Economists at MEG worked with Defendants’ individual databases to create a single “stacked” database that includes information regarding prices, sales volumes, and standardized

¹⁰²⁶ Wooldridge, J. (2020), *Introductory Econometrics: A Modern Approach*, 6th ed., Chapter 15.

¹⁰²⁷ Jonathan Baker and Daniel Rubinfeld, “Empirical Methods in Antitrust Litigation: Review and Critique,” *American Law and Economics Association* 1, no. 1 (1999): p. 391.

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product and customer information. Cirque Analytics staff (working under my direction) communicated with MEG personnel throughout the database preparation process. In order for me to conduct my analysis and prepare this report, MEG provided both the stacked database and the programs and backup information necessary for me and my staff to review and understand how the database was prepared from Defendants’ raw production files. Staff working under my direction reviewed the programs and data I rely on in this report and have modified the data as appropriate.¹⁰²⁸

417. As noted above, MEG created standardized primal categories for different beef products. Observations in each Defendant’s raw transaction data generally include a product code and a product description that are typically unique to that Defendant. For the purposes of my overcharge regression, I determine a weighted average net price of beef products, which is calculated for each unique combination of product, defendant, grade, month, and customer.
418. My analysis of Defendants’ products is ongoing, and may be updated if I receive additional information.

V.C. Benchmark and Conduct Periods

419. The econometric model I use in this case is a “benchmark” model. The use of such a model is standard practice in antitrust analysis.¹⁰²⁹ In such a model, prices during the period alleged to be affected by the alleged collusion are compared to prices during a “benchmark” period, which is assumed to be unaffected by collusion. A variable is included in my model to identify these different periods, as explained below.

V.C.1. Class Period Indicator

420. My econometric model is designed to determine impact and estimate the overcharge using a binary indicator (or “dummy”) variable. As suggested by the name, binary variables take on the value of either 0 or 1, depending on whether a given condition is met. For observations

¹⁰²⁸ Details can be found in my backup materials.

¹⁰²⁹ Jonathan Baker and Daniel Rubinfeld, “Empirical Methods in Antitrust Litigation: Review and Critique,” *American Law and Economics Review* 1, no. 1 (1999): pp. 391–393; Justin McCrary and Daniel Rubinfeld, “Measuring Benchmark Damages in Antitrust Litigation,” *Journal of Econometric Methods* 3, no. 1 (2014): 63–74 (“We have found the benchmark approach to be the most commonly used damages methodology”); Daniel Rubinfeld, “Antitrust Damages,” in *Research Handbook on the Economics of Antitrust Law*, ed. Einer Elhauge, 2009.

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outside of the Class Period, the Class Period indicator has a value of 0; for observations inside the Class Period, the indicator has a value of 1.

421. As discussed, Consumer IPPs have alleged a Class Period beginning August 1, 2014 through December 2019. Accordingly, I use August 1, 2014 as the starting point for my Class Period indicator variable.

V.C.2. Benchmark Period

422. To identify and measure the effect of the alleged collusion, I compared Defendants’ prices during the Class Period discussed above to Defendants’ prices during a benchmark period that is assumed to be unaffected by the alleged misconduct. Here, I chose a benchmark period prior to the Class Period, from January 1, 2010, through July 31, 2014.¹⁰³⁰

V.C.3. Additional Explanatory Variables

423. My econometric model includes a number of other explanatory variables to account for non-conspiratorial or market factors that affect prices for beef. I briefly discuss these variables below.

V.C.3.a. Product and Customer Characteristics

424. To account for customer-, product- or grade-specific differences in price, my econometric model includes fixed effects (*e.g.*, binary indicator variables) for each customer-product-grade combination in the data. Due to the large number of such variables, the specific coefficients are not included in the results of the econometric estimation presented in this report.

V.C.3.b. Seasonal Effects

425. It is well recognized that the demand for protein products, including beef, is seasonal, and documents produced by Defendants support this fact.¹⁰³¹ Therefore, my econometric model includes monthly indicator variables. I use the month of January as the base month and use 11 indicator variables for the remaining months.

¹⁰³⁰ Cargill’s sales data does not reflect complete sales until June 2012.

¹⁰³¹ JBS-0003135282, pp 2 -3; NationalBeef-00028187, p 1.

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V.C.3.c. Beef Production Costs

426. For my regression model, I use two different cost variables—one related to the cost of buying cattle, and one related to the cost of processing and packing beef products. As discussed above, I use a 2SLS approach to address endogeneity bias by first modeling cattle price and using those predicted values instead of cattle price in my main regression. I use the cattle cost data, estimated and maintained by Iowa State University as an instrumental variable for the price of cattle.¹⁰³² This monthly data spans the entire period of analysis and incorporates the costs associated with finishing cattle, including calf price, feed prices, the cost of veterinary services and other labor.¹⁰³³ The cost of raising cattle is an ideal instrumental variable for the price of cattle. First, it satisfies the exogeneity condition because the costs are determined before the time of sale, meaning they are unlikely to be correlated with random shocks in the month cattle are purchased for beef production. Second, cattle costs satisfy the relevance condition because they are the main component of the supply of cattle. Any shifts in the costs of raising cattle will have an impact on the price of cattle. Third, cattle costs are a good instrumental variable because they should be excluded from the model for beef price. Given the price of cattle, the costs involved in raising cattle are irrelevant to the supply of or demand for beef products.¹⁰³⁴
427. To account for additional processing and packing costs associated with producing beef products, I use Defendants’ own data on plant costs.¹⁰³⁵ Each of these variables are used in my model in natural log form.

¹⁰³² Iowa State University Estimated Livestock Returns, Finishing Steer Calves data, *available at* <https://estimatedreturns.econ.iastate.edu/>

¹⁰³³ See Iowa State University Estimated Livestock Returns, Procedure for Estimating Returns Finishing Steer Calves, *available at* https://estimatedreturns.econ.iastate.edu/files/inline-files/finishing_steer_calves_procedure.pdf

¹⁰³⁴ I have run a number of statistical tests to determine the validity of this instrument. This instrument passed both weak instrument and underidentification tests, establishing that it is a strong instrument. See backup materials.

¹⁰³⁵ We estimated variable costs from P&L data provided by Defendants. [REDACTED]

[REDACTED] Therefore, I do not consider their data reliable for purposes of this analysis have not included their costs in the combined plant cost series. See backup production for more detail.

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V.C.3.d. Beef Product Demand Indicators

428. I include several demand drivers to control for aspects of consumer demand for beef. These include indices that capture trends for Google searches including “beef” and other terms related to sustainability, safety and nutrition.¹⁰³⁶ The idea behind the indices is that they capture changes in demand for beef related to its perceived benefits and costs. The number of instances of beef mentioned along with certain keywords is used to measure awareness or concern related to beef and specific topics.¹⁰³⁷ These types of controls are relied on and cited in relevant industry academic research.¹⁰³⁸ In addition to these specific beef demand indices, I include data maintained by the CDC on the number of hospitalizations and the number of reported illnesses resulting from beef consumption.¹⁰³⁹

V.C.3.e. Competing Proteins

429. On a theoretical level, prices for any given product may be impacted to some degree by prices of substitute or competing goods. While beef does not have close economic substitutes, there are nevertheless some applications where prices of other proteins, such as chicken or pork, potentially affect beef prices to some degree.¹⁰⁴⁰ Therefore, including prices for competing

¹⁰³⁶ The Sustainability index aims to measure the degree of public concern for sustainable practices in the production of beef. It is the normalized monthly average searches that include the combinations “sustainable beef,” “sustainability beef,” “sustainable cattle,” and “sustainability cattle.” The Safety index is designed to measure the degree of public concern for the safety of beef products. It is the normalized monthly average searches that include the combinations “safety beef,” “recall beef,” “safety cattle,” and “recall cattle.” The Zinc-Iron-Protein index aims to measure the degree of public interest in the nutritional benefits of beef products. It is the normalized monthly average searches that include the combinations “zinc beef,” “iron beef,” “protein beef.”

¹⁰³⁷ The level of interest in a topic is measured using data from Google Trends. Google Trends is a service allows one to access the relative number of times a combination of words was searched on Google in different periods “FAQ about Google Trends data,” *available at* https://support.google.com/trends/answer/4365533?hl=en&ref_topic=6248052&sjid=14094589309770376980-NC.

¹⁰³⁸ Glynn T. Tonsor, Jayson L. Lusk, and Ted C. Schroeder, “Assessing Beef Demand Determinants,” Cattleman’s Beef Board, 2018, *available at* https://www.beefboard.org/wp-content/uploads/2019/06/Assessing-Beef-Demand-Determinants_FullReport.pdf. Glynn Tonsor, James Mintert, and Ted Schroeder, “U.S. Meat Demand: Household Dynamics and Media Information Impacts,” *Journal of Agricultural and Resource Economics* no. 35 (2010), pp. 1-17. Nicholas Piggott and Thomas Marsh, “Does Food Safety Information Impact U.S. Meat Demand?,” *American Journal of Agricultural Economics* no. 86 (2004), pp. 154-174. Murali Adhikari, Laxmi Paudel, Jack E. Houston, Krishna P. Paudel, and James O. Bukenya, “The impact of cholesterol information on meat demand: application of an updated cholesterol index,” *Journal of food distribution research* 37, no. 2 (2006), pp. 60-69.

¹⁰³⁹ Centers for Disease Control and Prevention (CDC). BEAM (Bacteria, Enterics, Ameba, and Mycotics) Dashboard. Atlanta, Georgia: U.S. Department of Health and Human Services, accessed September 25, www.cdc.gov/ncepid/dfwed/BEAM-dashboard.html.

¹⁰⁴⁰ Decline in other proteins gives leverage to increase beef prices, see JBS-0001153916. See also JBS-0000044540
[REDACTED] JBS-

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proteins in an econometric model is justified on both logical and economic grounds.¹⁰⁴¹ Specifically, my model includes prices for chicken and pork.¹⁰⁴²

V.C.3.f. *International Demand*

430. The domestic price of beef is also influenced by international demand and the international trade of beef products.¹⁰⁴³ To control for international demand and production, I include the trade-weighted exchange rate for beef imports and beef exports.¹⁰⁴⁴ These series are constructed by the USDA and includes the exchange rates for the countries that import beef from (or export beef to) the U.S., weighted by the amount they import (or export).¹⁰⁴⁵

V.C.3.g. *Macroeconomic Controls*

431. In addition to beef-specific control variables, it is also proper to account for macroeconomic factors that affect the purchasing and production decisions of individuals and firms in the broader economy. For example, U.S. incomes have generally risen over time, but the economy nevertheless cycles through expansions and contractions, and the growth of income is not necessarily constant. Therefore, my econometric model includes a measure of disposable income growth to reflect broader changes in consumption and spending over time that may affect beef prices. Specifically, I include the growth rate of real disposable income, on a per capita basis, in my econometric analysis. My analysis also includes a measure of the consumer price index (“CPI”) to account for changes in the overall cost of living and changes in the expenditures consumers make on a broad range of goods.

0000665246- 5319, at 5271, 74. U.S. Government Accountability Office, Additional Data Analysis Could Enhance Monitoring of U.S. Cattle Market, GAO-18-296 (Washington DC, 2018) p. 5, accessed September 18, 2024, available at <https://www.gao.gov/assets/gao-18-296.pdf>.

¹⁰⁴¹ JBS-0000665246- 5319, at 5271, 74.

¹⁰⁴² I use a one month lag of the 3 month moving average price for each protein.

¹⁰⁴³ U.S. Government Accountability Office, Additional Data Analysis Could Enhance Monitoring of U.S. Cattle Market, GAO-18-296 (Washington DC, 2018) p. 5, accessed September 18, 2024, available at <https://www.gao.gov/assets/gao-18-296.pdf>.

¹⁰⁴⁴ Agricultural Exchange Rate Data Set: Real Monthly Commodity Trade Weighted Exchange Rate, via US. Department of Agriculture Economic Research Service, accessed Sept. 25, 2024, <https://www.ers.usda.gov/data-products/agricultural-exchange-rate-data-set/agricultural-exchange-rate-data-set/#Commodity%20Spreadsheets>.

¹⁰⁴⁵ Agricultural Exchange Rate Data Set: Documentation, via US. Department of Agriculture Economic Research Service, accessed Sept. 25, 2024, <https://www.ers.usda.gov/data-products/agricultural-exchange-rate-data-set/documentation/>.

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V.D. Direct Overcharge Model Results

432. Below are the results from my direct overcharge model.

Figure 50. Direct Overcharge Regression Results

Explanatory Variables [1]	Estimate	Se
Chicken Price	0.1335	0.006 *
Pork Price	(0.0288)	0.008 *
Plant Variable Cost	0.2946	0.004 *
Beef Exports Weighted Exchange Rate	(0.0056)	0.000 *
Beef Imports Weighted Exchange Rate	0.0040	0.000 *
CPI	0.1776	0.010 *
Cattle Price	0.6697	0.005 *
Holcomb Fire	0.0309	0.001 *
CDC Beef Hospitalizations	(0.0000)	0.000 *
CDC Beef Illnesses	0.0000	0.000 *
Real DPI Per Capita (Percent Change)	0.0013	0.000 *
Safety Trend	0.0002	0.000 *
Sustainability Trend	0.0003	0.000 *
Zinc Iron Protein	(0.0018)	0.000 *
Aug 2014-Dec 2019 Period Indicator	0.049	0.001 *
Aug 2014-Dec 2019 Overcharge Rate [2]	[REDACTED]	
R2 estimates 0.947 [4] 0.951 [5]		
Number of Observations [3] [REDACTED]		
Benchmark Period Jan 1, 2010 through Jul 31, 2014		
Class Period Aug 1, 2014 through Dec 31, 2019		

Notes:

Standard errors are calculated by using clusters of Defendant, product, grade and customer. * denotes statistical significance at p<0.05.

[1] Coefficient estimates for the constant and Defendant-product-grade-customer fixed effects as well as those for monthly indicator variables are not reported.

[2] The Overcharge Rate is calculated by the following formula that accounts for the semi-log functional form of the regression model:

$$1 - \frac{1}{\exp(\text{Period Indicator} - 0.5 \times \text{Var}(\text{Period Indicator}))}$$

[3] Number of observations reflect the number of unique combinations of Defendant, product, grade, customer, and month values.

[4] R squared calculated using predicted cattle prices.

[5] R squared calculated using cattle prices.

433. The estimated coefficient of the August 2014 – December 2019 time period indicator variable is positive and statistically significant at the 99 percent confidence level. These results indicate

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that prices paid for beef products during the Class Period were higher as a result of the alleged conspiratorial conduct than they would have been in the absence of the alleged collusion. After the logarithmic form adjustment, as noted in the table, the regression results suggest that absent the alleged collusion by the Defendants, beef prices in the period August 2014 through December 2019 should have been [REDACTED] percent lower than they were.

V.D.1. Further Sensitivity Analysis

434. My overcharge model utilizes one indicator variable for the duration of the Class Period. While this is appropriate, I have also analyzed annual effects. The annual Class Period coefficients are statistically significant, positive and consistent with my overcharge above. The annual overcharge rates range from [REDACTED] percent.¹⁰⁴⁶
435. In addition, when my model is applied to beef wholesale and retail prices reported to the USDA, it shows an overcharge consistent with that estimated using Defendants’ data.¹⁰⁴⁷
436. Further, my overcharge model above appropriately includes data on sales to all direct purchasers. When I do limit my model to just customers relevant for the Consumer IPP distribution chain, the result is very similar.¹⁰⁴⁸
437. All of these analyses show results consistent with the direct overcharge rate I estimate above and support the robustness of my direct overcharge model.

VI. ALL OR NEARLY ALL INDIRECT CLASS MEMBERS WERE IMPACTED BY ARTIFICIALLY INFLATED BEEF PRICES

438. Rather than purchasing directly from Defendants, Consumer IPP Class members purchase beef products “indirectly” from direct purchasers—typically through grocery stores.¹⁰⁴⁹ Thus, whether Consumer IPP Class members are affected by the alleged anticompetitive conduct depends on whether direct purchasers pass on cost increases (*i.e.*, increases in the prices they paid to Defendants) to their downstream customers. Economically, Consumer IPP Class members suffer harm when at least some portion of the overcharge is passed on by direct

¹⁰⁴⁶ See backup production.

¹⁰⁴⁷ I find an overcharge of 5.9 percent on the USDA wholesale beef prices. See backup production.

¹⁰⁴⁸ The overcharge estimate after limiting to the relevant retail and multichannel customers is 5.2%. See backup production.

¹⁰⁴⁹ It is also possible for indirect purchasers to buy beef from other indirect purchasers when there are multiple steps within the distribution chain.

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purchasers (and intermediate indirect purchasers, if any). The higher the proportion of the overcharge that is passed through, the higher the harm suffered by Consumer IPP Class members.

439. In the following sections, I provide the basis for my conclusion that the overcharges were passed through to all or nearly all Consumer IPP Class members. I first discuss the economic theory and literature related to pass-through and explain how, barring extreme or implausible scenarios, at least some pass-through of overcharges would occur. I then discuss documentary evidence related to pass-through that is specific to this case. Finally, I conduct empirical analyses to investigate whether pass-through occurred at all levels of the retail distribution chain, as economic theory and the documentary evidence would suggest. As I will demonstrate, this evidence indicates that overcharges were passed down through the distribution chain to Consumer IPP Class members.
440. My analysis examines tens of thousands of individual beef products and find positive and statistically significant pass-through rates at each intermediary in the distribution chain for beef, beginning with the defendant processors and ending with the consumer class members. These findings are robust, featuring extensive coverage of the market—which supports the reliability of my conclusion. The results are also unsurprising, and align with economic theory of pass-through. This empirical analysis demonstrates that the overcharge on beef prices had a market-wide impact on the price of beef products sold to consumers and caused common, class-wide impact. The rate of pass-through can be reliably quantified and is used in my calculation of class-wide damages.

VI.A. The Economics of Pass-Through

441. Economic theory predicts that some amount of an overcharge would pass through the distribution chain down to the consumer. As a matter of economic principle, resellers of a product must recover their short-run variable costs when they price their products for the market. A reseller that fails to recover short-run variable costs would rationally exit the marketplace. In order to recover short-run variable costs, resellers must charge downstream customers prices which exceed the wholesale cost of the goods from their supplier, as well as any variable costs associated with holding the products in inventory until they are purchased by customers. Additionally, resellers would customarily also seek to recover a portion of their

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fixed costs and allow for (accounting) profit. The degree to which a reseller’s price exceeds its variable costs is referred to as “markup.” The pass-through rate is the proportion of wholesale cost changes that a reseller passes on to its customers. Because many resellers closely track their wholesale costs, but do not closely track inventory holding costs, simplified “constant” markups are often employed.¹⁰⁵⁰ When resellers rely on constant percentage markups, the pass-through rate will be 100 percent plus the constant markup percentage.

442. The degree to which a seller can pass costs on to downstream customers depends on a few factors, including the particular supply and demand elasticities, as well as the competitive landscape (which is affected by the number of buyers and sellers and their respective composition, the flow of information in the marketplace, and the presence of strategic or collusive behavior).¹⁰⁵¹
443. In a *perfectly competitive* market, firms set prices equal to marginal cost; therefore, when marginal costs increase, prices will rise such that the cost increase is passed through to the consumer 1:1 or at a 100 percent pass-through rate.¹⁰⁵² When a market is characterized by *imperfect competition*, resellers may have some market power but still face a downward sloping demand curve. In such a scenario, the pass-through rate may not be 100 percent. More generally, the actual pass-through rate will be determined by the relative elasticities of supply and demand for the firm or product in question.
444. Situations with negative or zero pass-through are typically confined to the realm of hypothetical examples in classrooms, and rarely arise in real-world markets. This is because economic theory shows that the only situations in which exactly zero cost pass-through would

¹⁰⁵⁰ “In the retail trades, a conventional pricing rule is to seek some standard percentage margin – for example 40% - of price less cost over price. Knowing the wholesale price W of an item, one finds the retail price by calculating $W / (1 - 0.4)$. The 40% margin must cover all selling and overhead expenses.” Scherer, F. and Ross, D., *Industrial Market Structure and Economic Performance*, Houghton Mifflin, 1990.

¹⁰⁵¹ See, e.g., Harris, R., and Sullivan, L., “Passing on the Monopoly Overcharge: A Comprehensive Policy Analysis,” *University of Pennsylvania Law Review*, Vol. 128, Issue 2, Dec. 1979; van Dijk, T. and Verboven, F., “Quantification of Damages,” *ABA Section of Antitrust Law*, 2008: 2331–2348; Cahill, M. and Kosicki, G., “Economics of Cost Pass Through and Damages in Indirect Purchaser Antitrust Cases,” *The Antitrust Bulletin*, 51-3, 2006; See also “Quantifying Antitrust Damages: Towards Non-Binding Guidance for Courts,” Oxera Consulting, Dec. 2009.

¹⁰⁵² See, e.g., Benigno, P., and Faia, E., “Globalization, Pass-Through and Inflation Dynamics,” *International Journal of Central Banking*, Vol. 12, No. 4, Dec. 2016: 263 – 306. van Dijk, T., and Verboven, F., “Cartel Damages Claims and the Passing-On Defense,” *Journal of Industrial Economics*, Vol. 57, Issue 3, Sept. 2009: 457–491; Froeb, L., Tschantz, S., and Werden, G., “The Effects of Merger Efficiencies on Consumers of Differentiated Products,” *European Competition Journal*, Vol 1, Issue 2 (Oct. 2005): 245–264.

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be expected involve either a perfectly elastic (*i.e.*, horizontal), industry-wide demand curve¹⁰⁵³ or a perfectly inelastic (*i.e.*, vertical) industry-wide marginal supply curve.¹⁰⁵⁴

445. In this case, the demand curve for beef does not fit the requirements for perfect elasticity—neither pork nor chicken qualify as perfect substitutes in all applications. Similarly, a perfectly inelastic supply curve is also highly unlikely because distributors may adjust the quantity of beef products that they distribute in response to changes in the prices that their customers are willing to pay.
446. The pass-through rate gives the proportion of a wholesale price increase that exists in the reseller’s downstream price. This can also be expressed as a pass-through elasticity. The pass-through elasticity gives the percentage change in a reseller’s price given a percentage change in the wholesale price. If the pass-through elasticity is greater than zero, then wholesale price increases are passed through to downstream purchasers to at least some certain degree. A pass-through elasticity of one indicates that a percentage increase in the wholesale price would lead to an increase in downstream prices by the same percentage. This is the case when resellers follow a constant markup rule. A pass-through elasticity greater or smaller than one can be interpreted as a percentage change in resale price being higher or lower than the percentage change in wholesale prices.
447. As noted above, basic principles of economics emphasize that cost pass-through is not simply the expected outcome, but a necessary outcome for distributors to remain in business. While an individual firm may, in certain contexts, be willing or able to absorb costs over the short run, that is not an economically viable long-run strategy. As such, economic theory predicts that at least some portion of beef purchase costs are passed from direct purchasers to Consumer

¹⁰⁵³ See Harris, R., and Sullivan, L., “Passing on the Monopoly Overcharge: A Comprehensive Policy Analysis,” *University of Pennsylvania Law Review*, Vol. 128, Issue 2, Dec. 1979: 269–360. Note that this refers to an industry demand curve, not firm-specific individual demand curves (which may well be perfectly elastic). Thus, “individual firms may face a perfectly elastic demand curve, but, by definition, though, an industry does not face a perfectly elastic demand curve, because an industry is defined (over product, geography, and time) in terms of intra-and inter-industry cross elasticities of demand. In short, a perfectly elastic demand curve for an industry implies that there is a nearly perfect substitute for that industry. A near-perfect substitute, however, means that the cross-elasticity of demand between two products is very high (that is, a price change in one product will raise sales of the other significantly), so that both products ought to be defined as part of the same industry in the first place.” (*Id.*). In other words, a properly defined industry largely precludes the existence of a perfectly elastic industry demand curve.

¹⁰⁵⁴ *Id.*

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IPP Class Members. Therefore, if Defendants were able to successfully raise prices to supracompetitive levels through collusion, all or virtually all Consumer IPP Class members would suffer at least some harm as a result.

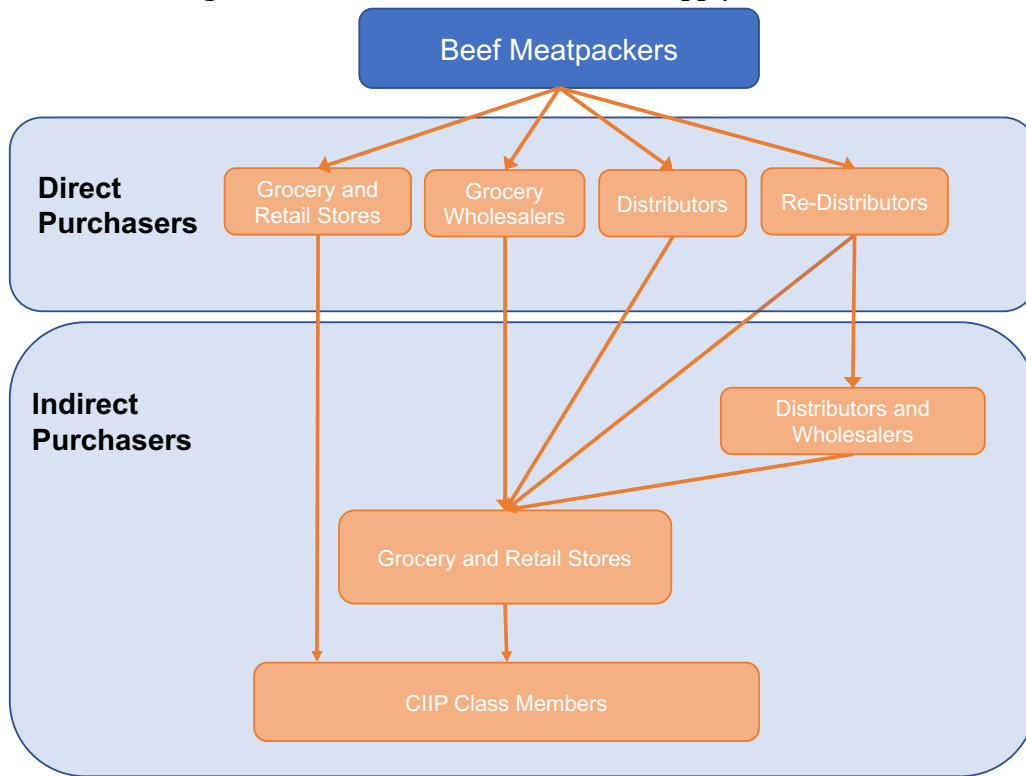
448. Below, I discuss how common evidence in this case demonstrates that Consumer IPP Class members would ultimately pay higher prices for beef because of the alleged collusion due to the overcharges being passed down through the distribution chain. In this case, third-party distributors have produced sales records demonstrating an ability to remain active in reselling beef for extended periods of time (*i.e.*, many years). Such longevity—in the face of rising prices over time—would be unlikely if a supplier were not passing through its costs. Further, as discussed below, other documents and testimony support a finding of pass-through to Consumer IPP Class members.

VI.B. Consumer IPP Beef Distribution Channel and Pass-Through

449. As discussed above, economic theory predicts pass-through. Moreover, both quantitative and qualitative data in this case demonstrate pass-through in the beef retail supply chain. This chain begins with the Defendants, who sell beef directly to grocery stores and wholesalers—the two primary intermediaries in the retail supply chain—and ends with consumers, who buy beef from grocery stores.
450. A large portion of the beef products sold through the retail channel are sold directly to retailers, such as Kroger or Publix, who then resell to consumers. Another portion of beef sold through the retail channel is first sold to wholesalers or distributors, who then sell to retailers.

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Figure 51. Relevant Consumer IPP Supply Chain



451. As discussed above, most commonly, there is one intermediate company between the processor and the consumer: the Defendant sells beef to a retail operation store (be it a grocery or club store) who then resells the beef product to the end consumer. The portion of the overcharge borne by the Consumer IPP Class is the pass-through rate measured from grocery stores to proposed Consumer IPP Class members. However, more than one level may exist in the supply chain between the Defendant and the Consumer IPP Class member. For example, the Defendant may sell to a wholesaler first, and this wholesaler then sells to a grocery store who then sells the product to consumers. While the distribution chain will sometimes be longer or shorter, the impact on Consumer IPP Class members does not depend on the length of the distribution chain. As an initial matter, as detailed below, the pass-through rates that I estimate are generally close to 100 percent. Where pass-through is 100 percent, the entire overcharge gets passed through to the Consumer IPP Class member regardless of the number of levels.
452. Furthermore, as a matter of economics, even if the pass-through rate is less than 100 percent, a consumer is not able to avoid a portion of the overcharge, regardless of the number of levels in the supply chain prior to their purchase. Even when the consumer purchases through a longer supply chain, the price paid would not differ meaningfully from the price charged through

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shorter supply chains since consumers would simply and rationally shift their purchasing behavior to the less expensive source if this were the case.

453. This basic principle of economic competition and substitution helps explain why different sellers would be expected to charge similar prices for the same (or highly similar) products in the same place and same time. Further, these principles apply to both horizontal (same distribution level) and vertical (different distribution levels) competition. The reseller that purchased directly from a Defendant will need to compete with the reseller that purchased that same product from a wholesaler or redistributor (who purchased from a Defendant). This means that the prices paid by Consumer IPP Class members do not need to be measured across every conceivable supply chain combination, since the prices charged by any reseller to consumers are formed in the same market. My pass-through estimates, discussed below, are based on a subset of resellers and retailers and accurately capture the prices Consumer IPP Class members paid and the portion of the direct overcharge they incurred.

VI.C. Common Evidence Demonstrates Pass-Through

454. Common evidence in this case demonstrates that Consumer IPP Class members would ultimately pay higher prices for beef because of the alleged collusion due to the overcharges being passed down through the distribution chain. As noted above, basic principles of economics emphasize that cost pass-through is not simply the expected outcome, but a necessary outcome for distributors to remain in business. Further, as discussed below, evidence common to the class supports a finding of pass-through to Consumer IPP Class members. First, Grocery retailers and distributors operate in a market that is highly competitive which promotes pass-through since these intermediate parties must compete on price. Second, substantial third party and defendant documents and testimony support the existence of pass-through as a well-accepted practice in the industry. Third, my pass-through analysis, based on a substantial amount of relevant grocery and distributor data, demonstrates high and consistent pass-through rates throughout the supply chain.

VI.C.1. Grocery Wholesalers and Retailers Operate in a Competitive Environment That Promotes Pass-Through

455. Other things equal, a higher degree of competition will lead to a higher degree of pass-through. As such, I investigated evidence related to the competitive environment in which third-party

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distributors operate. As discussed below, there is ample evidence that the distribution chain for beef products is highly competitive; accordingly, economic theory would suggest that such distributors would pass through a high percentage of any cost increases they incur when reselling beef products.¹⁰⁵⁵

456. Grocery wholesalers describe operating in a highly competitive environment where customers routinely switch suppliers and where smaller operators and direct distribution present a competitive threat. For instance, [REDACTED] described missing sales goals and losing business to aggressive competition from [REDACTED].¹⁰⁵⁶ In recent years the number of member-retailers in [REDACTED] has declined due to competition from other distributors, such as [REDACTED] and [REDACTED].¹⁰⁵⁷ [REDACTED], which is a wholesale co-op representing grocery stores that are in normally in small rural areas,¹⁰⁵⁸ described that its main competition is from [REDACTED]. [REDACTED]¹⁰⁵⁹ United Natural Foods states that the “food distribution industry is highly competitive” with its largest competition being from direct distribution, where customers with sufficient volume can obtain lower prices by purchasing directly from manufacturers.¹⁰⁶⁰

457. Grocery stores similarly describe operating in a highly competitive environment where customers shop on price and where non-traditional grocers present a competitive threat. [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]¹⁰⁶¹ [REDACTED]

¹⁰⁵⁵ Ritz, R. (2018). “Oligopolistic competition and welfare.” Apollo - University of Cambridge Repository. <https://doi.org/10.17863/CAM.7839>; See also Reny, P. Wilkie, S., and Williams, M. (2012), “Tax Incidence Under Imperfect Competition: Comment,” International Journal of Industrial Organization, vol. 30, pp. 399-402.

¹⁰⁵⁶ [REDACTED]
¹⁰⁵⁷ [REDACTED]
¹⁰⁵⁸ [REDACTED]
¹⁰⁵⁹ [REDACTED]

¹⁰⁶⁰ United Natural Foods, Inc. Form 10-K for the fiscal period ended August 3, 2019, at page 8 (“Competition”), available at <https://d18rn0p25nwr6d.cloudfront.net/CIK-0001020859/51842d46-05b2-4d3e-9df3-10f778e22f0b.pdf>.

¹⁰⁶¹ [REDACTED]

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In SpartanNash’s 2017 annual report, it states that independent grocers “face intense competition from supercenters, deep discounters, mass merchandisers, limited assortment stores, and e-commerce providers.”¹⁰⁶³ A Wegman’s executive stated that “Everybody who sells food is our biggest competitor” and explained “For us to be competitive, we’ve always had a commitment to our customers to have the lowest prices on products families use the most.”¹⁰⁶⁴ In 2018, Sprouts described operating “within the intensely competitive and highly fragmented grocery store industry” where conventional supermarkets have experienced a collected decline in market share.¹⁰⁶⁵ In 2020, Albertsons described intense competition among a collection of local and national participants, including brick and mortar retailers, specialty markets, and online retailers, among many others.¹⁰⁶⁶

458. Industry analysts also describe a high degree of competition among grocery stores. For instance, SuperMarket News states that over the past 20 years the top four supermarket grocers have lost 15 percent market share due to “more grocery choice, competition, convenience and price transparency than ever before, particularly with the rise of online grocery obviating the need to go to different stores to price check.”¹⁰⁶⁷ Dr. Gielens, a professor of marketing at the University of North Carolina, Chapel Hill, notes that “supermarket chains systematically compete with each other on price” and when studying the competitive price-cutting effect of Lidl’s entry in the U.S grocery market, Dr. Gielens found that retailers set their prices 9.3

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¹⁰⁶³ SpartanNash Company Form 10-K for the fiscal period ended December 30, 2017, at page 9 (“Competition”), available at <https://s3.amazonaws.com/sec.irpass.cc/1679/0001564590-18-003137.pdf>.

¹⁰⁶⁴ USA Today, “Supermarkets are losing the grocery price war,” accessed Sept. 24, 2024, <https://www.usatoday.com/story/money/personalfinance/2017/03/20/supermarkets-grocery-store-food-prices/99117710/>.

¹⁰⁶⁵ Sprouts Farmers Market, Inc. Form 10-K for the fiscal period ended December 30, 2018, at page 10 (“Our Competition and Industry”), available at <https://d18rn0p25nwr6d.cloudfront.net/CIK-0001575515/03f9a0e7-6f6d-460d-8aa7-80e767aa478c.pdf>.

¹⁰⁶⁶ Albertsons Companies, Inc. Form 10-K for the fiscal period ended February 29, 2020, at page 9 (“Competition”), available at <https://d18rn0p25nwr6d.cloudfront.net/CIK-0001646972/11dcaae0-aae8-4c49-a76c-eb24f919cf51.pdf>.

¹⁰⁶⁷ Supermarket News, “In 2024, Kroger, Albertsons is not (even close to being) a ‘grocery monopoly,’” accessed Sept. 24, 2024, <https://www.supermarketnews.com/consumer-trends/in-2024-kroger-albertsons-is-not-even-close-to-being-a-grocery-monopoly->.

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percent lower in markets where Lidl operates, which is greater than the reported effect of Walmart’s entry in a new market (ranging between 1 percent and 5 percent).¹⁰⁶⁸

459. Grocery stores routinely gather pricing data and perform in-store price checks at competitor locations to ensure that their pricing remains competitive. For example, [REDACTED] explained that its pricing department monitors competitor pricing [REDACTED] [REDACTED] ¹⁰⁶⁹ [REDACTED] does regular price checks on its high volume beef products to [REDACTED] [REDACTED] [REDACTED] ¹⁰⁷⁰ [REDACTED] performs ad hoc visits to competitor locations to observe what competitors are offering for sale and pays a third-party to go into competitor stores to collect retail pricing data.¹⁰⁷¹ [REDACTED] is also aware that competitors come into its stores to do similar price checks, and is aware that retailers may lower their price in relation to a competitor after performing competitive price checks.¹⁰⁷² As an example, [REDACTED] pricing strategy involves adjusting its retail price down following two competitor price checks.¹⁰⁷³ Meanwhile, [REDACTED] [REDACTED] checks competitor pricing to gauge its own competitiveness and for opportunities to go up or down in price.¹⁰⁷⁴

VI.C.2. Industry Members Recognize the Existence of Pass-Through

460. There is extensive documentary evidence in this case that demonstrates the economic prediction of pass-through holds true for the retail supply chain of beef. As discussed above, the primary intermediaries in the beef retail chain are wholesalers and retailers. Thus, I have focused my review of the documentary evidence on retailers and distributors. Documents and testimony from these intermediaries, as well as from Defendants themselves, indicate that the distribution chain passed on beef cost increases through higher prices.

¹⁰⁶⁸ University of North Carolina Kenan-Flagler Business School, “Lidl Significantly Pressures U.S. Supermarket Chains to Cut Prices at Unprecedented Levels,” accessed Sept. 24, 2024, <https://www.kenan-flagler.unc.edu/news/lidl-significantly-pressures-u-s-supermarket-chains-to-cut-prices-at-unprecedented-levels/>.

¹⁰⁶⁹ [REDACTED]
¹⁰⁷⁰ [REDACTED]
¹⁰⁷¹ [REDACTED]
¹⁰⁷² [REDACTED]
¹⁰⁷³ [REDACTED]
¹⁰⁷⁴ [REDACTED]

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461. The basic business model of a distributor in the beef retail chain is to buy beef from a processor and then resell it—usually to grocery store or retail outlet. Distributors make a profit by adding a markup above their cost when they resell the beef product. [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] 1075

462. This basic business model—passing on higher costs in the form of higher prices—is a well-accepted practice among distributors. [REDACTED]

[REDACTED] 1076

[REDACTED]

[REDACTED]

463. While distributors could theoretically avoid a small short-term price increase from one supplier, economic theory predicts that it is much more difficult to avoid systemic price increases over the long term. [REDACTED]

[REDACTED]

[REDACTED] 1077 [REDACTED] bought beef

even when prices were high, and planned to pass on those price increases to [REDACTED]

customers, [REDACTED] 1078

1075 [REDACTED]
1076 [REDACTED]
1077 [REDACTED]
1078 [REDACTED]

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464. The documentary evidence also indicates that these price increases are passed on through the distribution chain relatively quickly. [REDACTED]

[REDACTED]¹⁰⁷⁹

[REDACTED]

[REDACTED]

[REDACTED]

465. [REDACTED] is wholesale grocery cooperative owned by its independent retail stores, which are charged the original product cost plus markup, based on both purchase volume and travel distance to the warehouse.¹⁰⁸⁰ The markup that [REDACTED] adds to its costs is based on a target margin of [REDACTED] for beef,¹⁰⁸¹ and [REDACTED] also charges its members [REDACTED] for delivery costs.¹⁰⁸² [REDACTED] explained that that its members will then mark up their costs by [REDACTED] when selling to their end customers.¹⁰⁸³ [REDACTED] also puts together ads for its members with suggested retail prices that include a markup for the stores, which the members can use to set prices when selling to their end customers.¹⁰⁸⁴

466. Other distributors have confirmed that they regularly passed on the costs of beef to their customers, often in the form of a flat mark up. For example, [REDACTED] [REDACTED]¹⁰⁸⁵ testified that [REDACTED] charges its members a flat markup of [REDACTED] on fresh beef and ground beef products, a [REDACTED] markup on case-ready products, and a [REDACTED] markup for frozen beef products.¹⁰⁸⁶ These markups

1079
1080
1081
1082
1083
1084
1085
1086

[REDACTED]

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were applied to all products regardless of whether it was bought from Defendants on the spot market, from standing weekly orders (with pricing based on an overage of the prior week’s USDA average), or for products negotiated five weeks out for ad business.¹⁰⁸⁷ [REDACTED] explained that the only time the markups didn’t apply was during the first few months of COVID, when [REDACTED] was simply trying to secure product for its customers, which sometimes resulted in selling it to them at a loss.¹⁰⁸⁸

467. [REDACTED] operates as a wholesale co-op comprised of over [REDACTED] independent grocery stores and small grocery chains that primarily operate in rural areas.¹⁰⁸⁹ [REDACTED] provides its grocery store customers with suggested retail prices for beef sold on ad, where the suggested retail price includes a gross profit of between [REDACTED] to the grocer, and the grocers generally follow the suggested retail prices.¹⁰⁹⁰ So [REDACTED] passes through its costs plus a flat markup to its grocery store members, who then pass on their costs to end-customers with an added [REDACTED] margin.

468. Other distributors describe similar business practices of passing on costs to retailers, who in turn pass on costs to consumers. For example, [REDACTED] is a grocery wholesaler who distributes products to roughly [REDACTED] grocery stores.¹⁰⁹¹ [REDACTED] explained that [REDACTED] typically adds a [REDACTED] markup to all beef products, which was generally consistent throughout the Class Period but may have been adjusted by a few cents to maintain a target margin of [REDACTED] across all meat sales.¹⁰⁹² An internal [REDACTED] email described its [REDACTED], which was the formula that [REDACTED] followed to add a markup to its cost.¹⁰⁹³

469. [REDACTED] also provides suggested retail prices to the independent grocery stores it supplies, where since [REDACTED] the suggested price to the consumer has been calculated as a [REDACTED] percent markup

1087 [REDACTED]
1088 [REDACTED]
1089 [REDACTED]
1090 [REDACTED]
1091 [REDACTED]
1092 [REDACTED]
1093 [REDACTED]

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[REDACTED] on [REDACTED] price to the grocery store.¹⁰⁹⁴ [REDACTED] explained that [REDACTED] provides the suggested price is optional but is provided to ensure that the independent grocers are [REDACTED] [REDACTED]¹⁰⁹⁵

470. Just like distributors, grocery stores of all sizes must pass on higher costs in order to maintain profitability. As [REDACTED] put it, [REDACTED]¹⁰⁹⁶ Pass-through is the general rule for grocery stores, as [REDACTED] explained.¹⁰⁹⁷

[REDACTED]

471. Grocery stores typically have a target profit margin in mind when setting retail prices for its beef products and will adjust prices in response to changes in costs. [REDACTED] [REDACTED] explained, [REDACTED] has a target margin of [REDACTED] for fresh beef.¹⁰⁹⁸ That has been roughly the same target margin since at least [REDACTED]¹⁰⁹⁹ [REDACTED] further explained that its target margins are set so that it can also cover its costs when temporarily selling beef products as an ad item, which are typically [REDACTED] off regular retail.¹¹⁰⁰ Because [REDACTED] operates with a target margin on beef, the retail prices change when costs change:¹¹⁰¹

1094 [REDACTED]
1095 [REDACTED]
1096 [REDACTED]
1097 [REDACTED]
1098 [REDACTED]
1099 [REDACTED]
1100 [REDACTED]
1101 [REDACTED]

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[REDACTED]

472. The documentary evidence shows that other grocery stores operate with similar target margins. For example, the grocery store [REDACTED] sets prices to achieve a monthly targeted margin of [REDACTED] across all meat and when selling a beef product as an ad item the retail price would be based on the cost that [REDACTED] paid for that product.¹¹⁰²

473. The grocery store [REDACTED] similarly explained that it manages [REDACTED] [REDACTED]¹¹⁰³ Internal documents from [REDACTED] support this testimony; an internal [REDACTED] email outlined its intention [REDACTED] [REDACTED] due to a fire at Tyson’s Holcomb plant in 2019.¹¹⁰⁴ A month later, [REDACTED] described that it [REDACTED] by raising prices on [REDACTED] and following [REDACTED] which was maintained at [REDACTED] for the overall mix, including [REDACTED]¹¹⁰⁵

474. [REDACTED] sets annual gross margin targets for its entire meat department, and in recent years has started to set margins specific to each commodity, including total beef.¹¹⁰⁶ [REDACTED] considers its gross margins as a factor when setting price,¹¹⁰⁷ and evidence indicates that [REDACTED] adjusted its beef prices in response to cost changes – [REDACTED] [REDACTED]¹¹⁰⁸ For example, when beef costs were affected by the Tyson plant fire in 2019 [REDACTED] reacted by increasing [REDACTED] and planned to [REDACTED] [REDACTED]¹¹⁰⁹ Later that year, [REDACTED] made

1102 [REDACTED]
1103 [REDACTED]
1104 [REDACTED]
1105 [REDACTED]
1106 [REDACTED]
1107 [REDACTED]
1108 [REDACTED]
1109 [REDACTED]

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price changes in response to consistent rising costs on several key beef items, and expected [REDACTED]¹¹¹⁰

475. The grocery store [REDACTED] also sets gross margin targets for its beef category, which is currently set at [REDACTED]¹¹¹¹ [REDACTED] passes on price increase to its customers to maintain its margin.¹¹¹² For example, an internal [REDACTED] email directed its category managers to increase prices in response to cost increases and attached a slide deck outlining [REDACTED] strategy to maintain its category gross profit margins of [REDACTED] on beef products.¹¹¹³

476. The grocery store [REDACTED] purchases beef products on behalf of its corporate owned stores and stores that are independently owned and operated under the [REDACTED]¹¹¹⁴ [REDACTED] includes a wholesale markup on its costs when independent stores order beef products,¹¹¹⁵ and seeks a [REDACTED] profit margin on its retail sales of beef products.¹¹¹⁶

477. Defendants’ own documents also confirm that pass-through is an expected business practice in the beef retail market. [REDACTED]
[REDACTED]
[REDACTED]¹¹¹⁷ [REDACTED]
[REDACTED]
[REDACTED]¹¹¹⁸

478. [REDACTED]
[REDACTED]¹¹¹⁹

¹¹¹⁰ [REDACTED]

¹¹¹¹ [REDACTED]

¹¹¹² [REDACTED]

¹¹¹³ [REDACTED]

¹¹¹⁴ [REDACTED]

¹¹¹⁵ [REDACTED]

¹¹¹⁶ [REDACTED]

¹¹¹⁷ JBS-0000793825.

¹¹¹⁸ CARGILL001384796, CARGILL001384797.

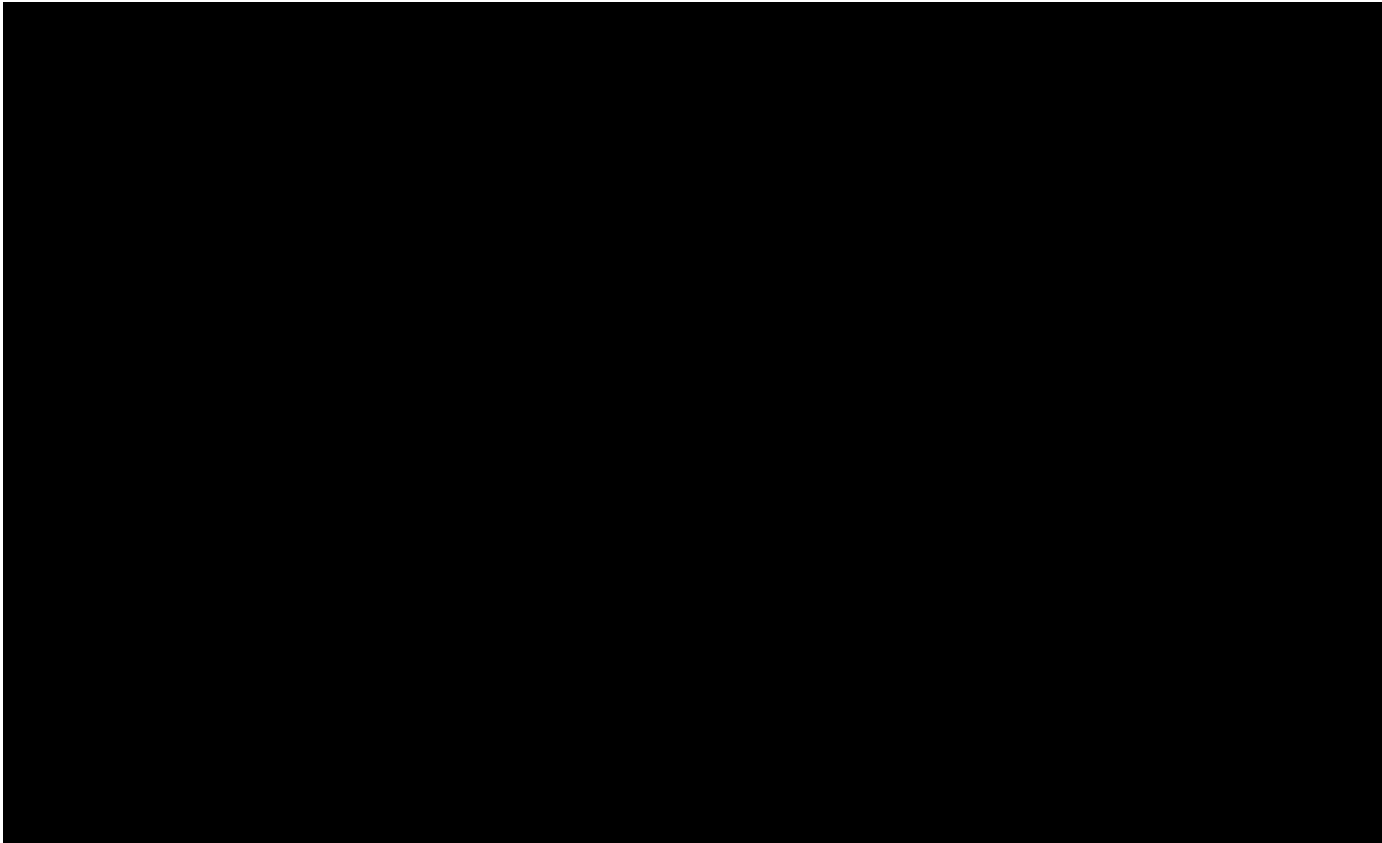
¹¹¹⁹ TYSONBEEF02022983-23186 at 23088.

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Figure 52 [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]¹¹²⁰ The fact that retailers earn a gross profit on beef products is evidence that costs are passed through the supply chain and on to the end-customer.

Figure 52. Tyson’s Analysis of Profits Through the Beef Supply Chain Demonstrates Retailer



479. Defendants recognized pass-through during negotiations with grocery stores. For example,

[REDACTED]
[REDACTED]
[REDACTED]¹¹²¹ [REDACTED]
[REDACTED]
[REDACTED]

¹¹²⁰ TYSONBEEF02090218 at 243.

¹¹²¹ JBS-0002264155-171 at 163.

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[REDACTED] 1122
[REDACTED]
[REDACTED] 1123 [REDACTED]
[REDACTED] 1124
[REDACTED]
[REDACTED]

[REDACTED] 1125 Also, Shannon Grassl – the head of pricing, sales, and supply chain for JBS – testified that [REDACTED]

[REDACTED] Thus, the evidence indicates that regardless of whether a grocery store purchases directly from Defendants or indirectly through a grocery wholesaler, costs are passed through the beef retail supply chain and on to Consumer IPP Class members.

VI.C.3. Third-Party Data Supports a Finding of Pass-Through

480. The third-party sales and purchase data demonstrate the consistent pass-through throughout the beef supply chain and indicate low average price to cost ratios – or, low profit margins – which are consistent with a highly competitive market.¹¹²⁷ **Figure 53** and **Figure 54** are examples of retailers passing their costs through to its pricing for end customers.

481. **Figure 55** below also shows how closely reseller pricing follows the price they paid to Defendant producers, indicating distributors’ pass-through of Defendant beef price changes.¹¹²⁸ These examples of passthrough are not exceptional, but instead are commonplace and the expected economic outcome in a distribution system such as that for beef products.

¹¹²² JBS-0002264907-920 at 4907-4910, 4916-4918.

¹¹²³ TYSONBEEF03169045-9125, at 03169056, 03169101, and 03169112.

¹¹²⁴ TYSONBEEF03169045-9125, at 03169121.

¹¹²⁵ JBS-0000666668.

¹¹²⁶ 30(b)(1) Deposition of Shannon Grassl, April 25, 2024, pp. 191-192; JBS-0001808683 (Grassl Ex. 532).

¹¹²⁷ See the price to cost ratios summarized in **Figure 56**, which range from [REDACTED]

¹¹²⁸ See also **Appendix E**. As I explain in Appendix C, Troyer data does not include useable date information. As such, Troyer is excluded from **Appendix E**.

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Figure 53. [REDACTED] **Monthly Weighted Average Price and Cost (Top Product)**

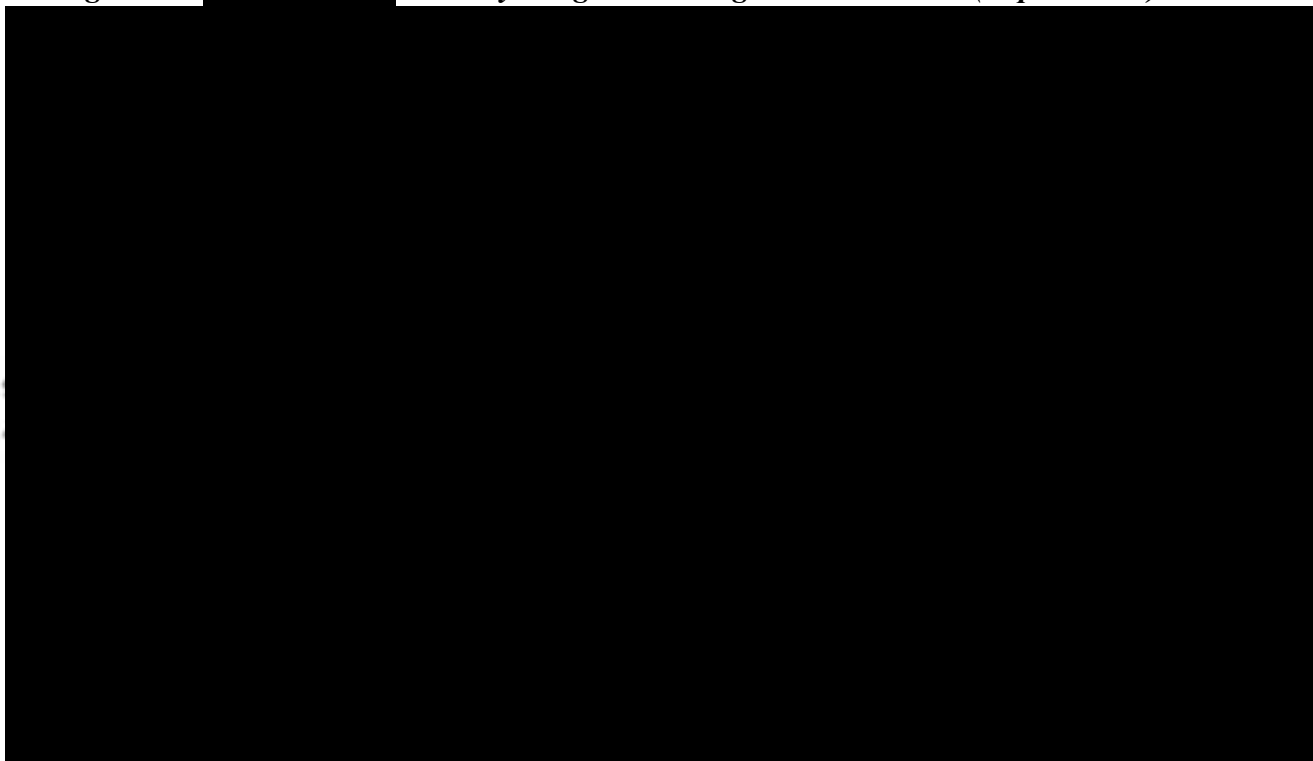
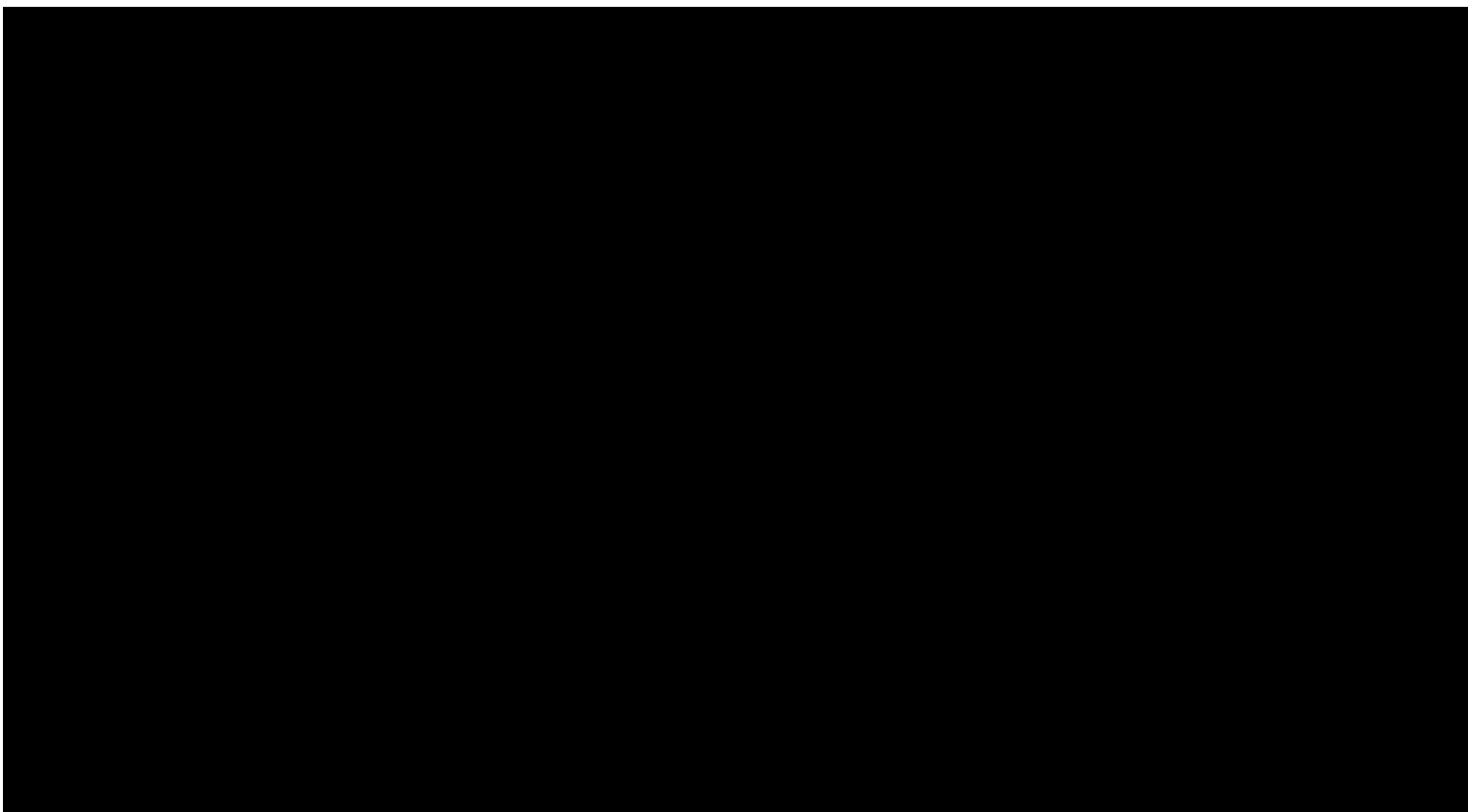
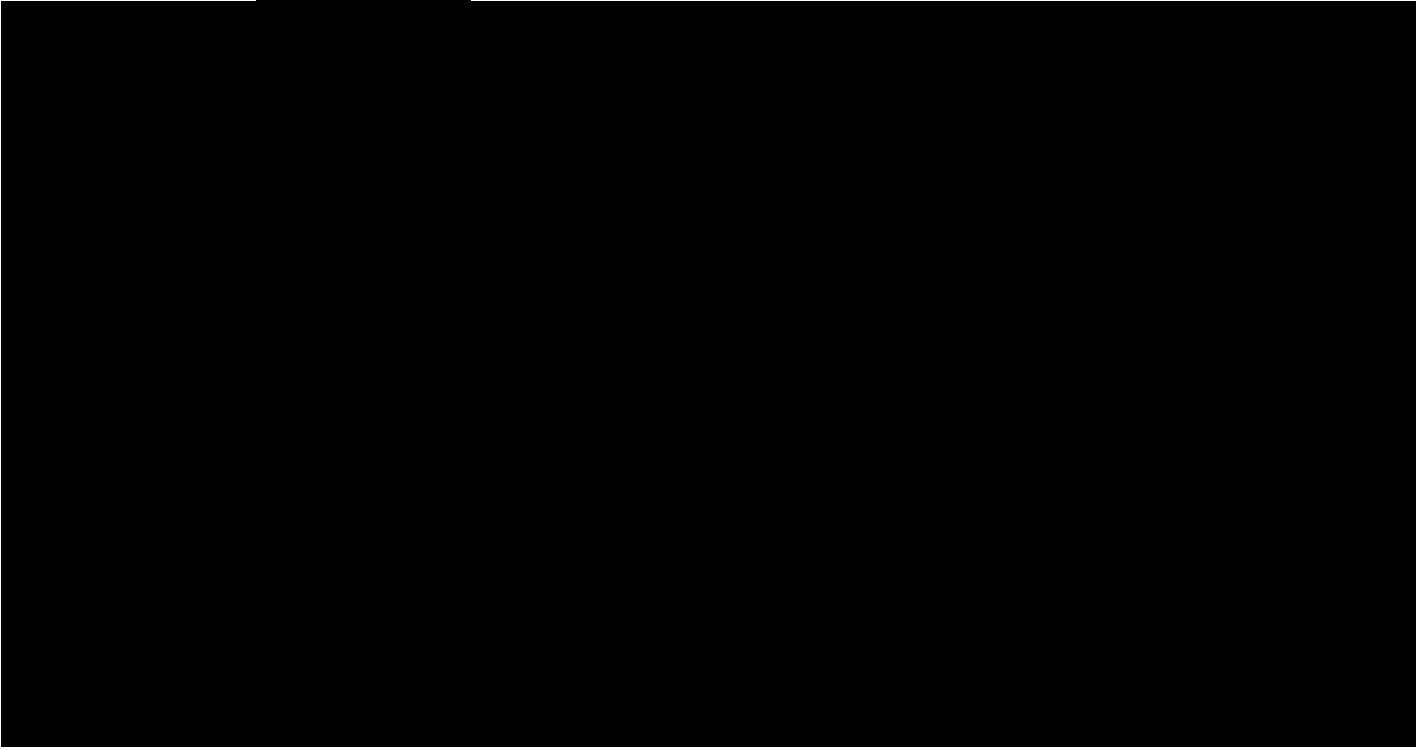


Figure 54. [REDACTED] **Monthly Weighted Average Price and Cost (Top Product)**



*Confidential – Attorneys’ Eyes Only***Figure 55.**  **Monthly Weighted Average Price and Cost (Top Product)****VI.C.4. Multiple Regression Analysis Confirms Pass-Through**

482. The charts above show how closely aligned the resellers’ beef sales price is to their purchase price. While the close relationship between cost and price is readily evident from inspection of these graphs, a more quantitative approach that incorporates scores of products (rather than individual examples) and transactions over time is valuable. Regression analysis is an appropriate way to measure this pass-through by modeling the relationship between the changes in cost and changes in sales price. I performed this analysis and estimated a pass-through rate for several representative third parties based on their sales and purchase data.

VI.C.4.a. Third Party Data

483. I relied on purchase and sales data received from 32 third parties to analyze beef pass-through across a range of resellers relevant to the Consumer IPP Class. These third parties account for around 64 percent¹¹²⁹ of the Defendant sales into the Consumer IPP supply chain, covering the

¹¹²⁹ The direct purchaser resellers for which we have third-party data account for 64 percent of the relevant commerce as identified in the Defendants’ sales. The total sales to these customers depicted in the Defendant data does differ from the sales totals provided in the third party’s own produced data due to a number of reasons such as differing time frames and the inclusion or exclusion of subsidiaries. As such, it is not the case that 64 percent of the relevant defendant commerce is necessarily captured in the third party data provided, but rather that the

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range of reseller types including wholesalers, retailers, distributors, and re-distributors. Further, the grocery stores that I include in my analysis make up over 51 percent of the U.S. retail commerce for consumers.¹¹³⁰

484. The third party data collectively spans from January 2010 through August 2024, and totals over [REDACTED] in sales for beef products.¹¹³¹ They include:

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

third party data provided represents commerce for the majority (as much as 64 percent) of the total relevant beef commerce. See backup production.

¹¹³⁰ A UBS and Business Insider analysis of US grocery market share indicates that the grocery stores included in my analysis account for 51.8 percent of market share [REDACTED]

[REDACTED] See Business Insider, “The Grocery Wars Are Intensifying with Walmart and Kroger in the Lead and Amazon Poised to ‘Cause Disruption,’” accessed Sept. 23, 2024, <https://cc.bingj.com/cache.aspx?q=2019+grocery+market+share+&d=4764618126470782&mkt=en-US&setlang=en-US&w=-SBjxBQ4xzF2sufKU3OeWjZqkMRluD59>.

¹¹³¹ See backup production.

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[REDACTED]

485. It was necessary to clean the data received from third parties in order to ensure that the prices, quantities and sales amounts utilized in my pass-through regression analyses were as accurate as possible. The cleaning and adjustments made to the data include:

- Removal of sales transactions for non-beef products;
- Removal of sales transactions for non-relevant beef products;¹¹³²
- Removal of transactions that were subsequently returned or cancelled;
- Removal of sample transactions;
- Incorporating the rebates, credits/debits, and other adjustments into monthly quantities, sales amounts, average prices, and average costs;
- Calculating accurate quantities where none were provided, otherwise dropping non-reliable quantity or sales amounts;¹¹³³
- High-level consolidation and cleaning of customer names and vendors;

¹¹³² Non-relevant beef products are defined in **Section I.B.1**. For purposes of calculating pass-through, I have excluded offal, seasoned products, products with beef as an ingredient, or cooked beef.

¹¹³³ More specifically, if a transaction has prices and costs that are not in the same unit of measurement (e.g., pounds), then it is excluded from the model.

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- Removal of sales to customers with a foreign address;
- Removal of sales to government entities;
- Removal of transactions that are denominated in foreign currencies; and
- Removal of outliers.¹¹³⁴

486. **Appendix C** includes further information on the individual third-party data. The backup production to this report includes the codes that detail the precise methodology used for processing the third-party sales and purchase transaction data. To the extent that there are any further adjustments that need to be made for any sales or purchase records, or that additional information or data is received after the submission of this report, I will update my analysis appropriately.

VI.C.4.b. *Pass-Through Regression Methodology*

487. I have estimated pass-through in this case by using regression analysis to estimate the impact of beef product cost changes on the price of beef products. I run the same model specification for each of the 32 third parties separately to determine whether the existence of pass-through is consistent across the third parties for which I have data. In each pass-through model, the dependent variable is the natural log of the monthly price paid by a downstream purchaser for a beef product, and the explanatory variables include the natural log of the monthly average cost (by product and customer) incurred by the third-party seller to acquire the beef product. My pass-through regression model specification includes fixed effects that control for differences in price across individual customers (when available).

488. In the direct overcharge model discussed previously, the parameter of interest is the coefficient on a dummy variable applied to sales during the Class Period. In a pass-through model, however, the parameter of interest is the coefficient on the price charged by Defendants (*i.e.*, the cost variable). Since grocery stores may incur additional costs for some of the relevant beef

¹¹³⁴ Outliers are identified where either (a) the price to cost ratio is greater than 3 or less than 0.3, or (b) transaction prices or monthly average prices less than \$1.00 per unit or more than \$1,000.00 per unit. If the unit of measurement is in pounds, then prices greater than \$50.00 per pound are identified as an outlier.

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products after their purchase, such as labor and material costs for cutting and packaging at the meat counter, I have included these costs in my pass-through modelling for retailers.¹¹³⁵

489. For some of the third parties listed above I received transaction cost information in their sales data as well as separate purchase data, in which case I can compare the two measures of cost. The transaction cost and purchase price tracked closely for all of those third parties, providing further supporting for the reliability of the cost measures. A comparison of the transaction cost and purchase price by third party and top product can be found in **Appendix D**. Generally, I utilized the cost data in my analysis, unless a third party only produced purchase data.

VI.C.4.c. Results of Pass-Through Estimation

490. The results of my pass-through regression analyses further support the existence and consistency of high pass-through rates throughout the distribution of beef products. The individual pass-through estimates, shown in the table below, are all very high and statistically significant at the 99 percent level. The weighted average, median, and simple average pass-through rates are all around 100 percent. As explained above, a pass-through rate of 100 percent indicates every penny increase (or decrease) in the price paid by a distributor for the beef product results in a penny increase (or decrease) in the price charged by that distributor, and a pass-through rate above 100 percent is consistent with a percentage markup. While 100 percent pass-through is how distributors generally operated, there are a number of reasons why one may not necessarily expect to see 100 percent pass-through across the board, including slight delays in implementing price adjustments or differences across third parties in that timing. It is also worth emphasizing that a pass-through rate below 100 percent does not

¹¹³⁵ Specifically, I include the producer price index for plastics packaging film and sheet manufacturing (Federal Reserve Bank of St. Louis, “Producer Price Index by Industry: Plastics Packaging Film and Sheet Manufacturing,” accessed Sept. 23, 2024, <https://fred.stlouisfed.org/series/PCU326112326112>), the producer price index for polystyrene foam food containers (U.S Bureau of Labor Statistics, “PPI industry data for Polystyrene foam product manufacturing-Polystyrene foam food containers, not seasonally adjusted” accessed Sept. 23, 2024, <https://data.bls.gov/dataViewer/view/timeseries/PCU32614032614021>), and the average hourly earnings of all employees, supermarkets and other grocery retailers (except convenience retailers) (U.S Bureau of Labor Statistics, “Average hourly earnings of all employees, supermarkets and other grocery retailers (except convenience retailers), seasonally adjusted,” accessed Sept. 23, 2024, <https://data.bls.gov/dataViewer/view/timeseries/CES4244511003>). While I do not include these public costs in the pass-through results for non-retailers, I have analyzed this sensitivity and including these costs does not have a significant effect on the pass-through rates. Similarly, not including the public cost series in the retailer models does not have a significant effect on my pass-through estimates. I include these cost measures for retailers across all beef products, including some products, such as case ready beef, that would not be subject to the same level of additional costs.

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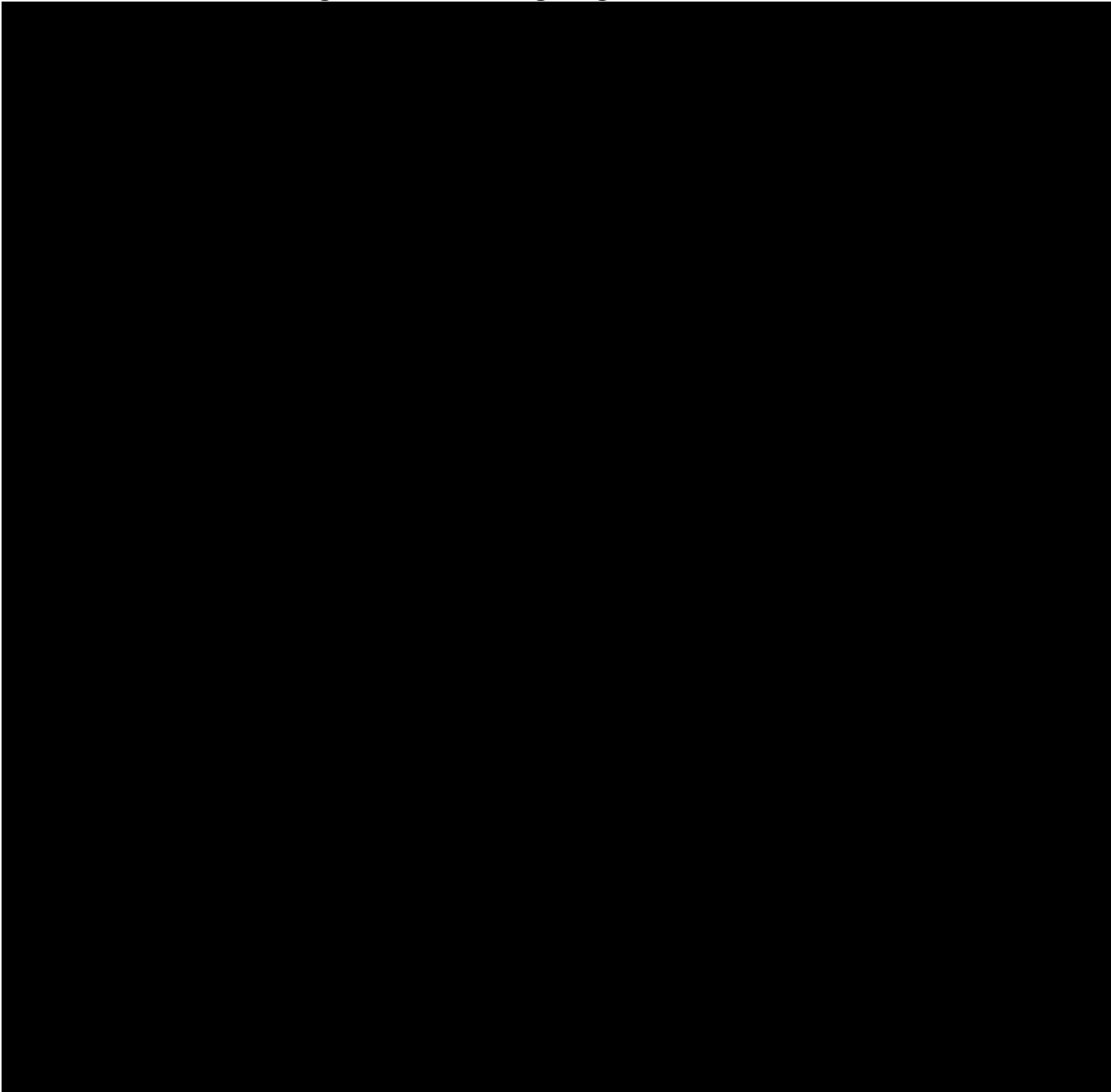
indicate the absence of pass-through. Indeed, any estimated pass-through rate above 0 percent demonstrates the existence of at least some pass-through. In this case, nevertheless, all the individual pass-through estimates depicted below are very high and support the conclusion that distributors responded to price increases by charging their customers, including Consumer IPP Class members, higher prices. While the data available to me does not include every single reseller who purchased from Defendants or sold to Consumer IPP Class Members, the estimated pass-through rates are quite consistent across a wide range of third party distributors, including different types of companies, different geographic areas, and different levels in the supply chain.¹¹³⁶ Lastly, as mentioned above, being able to rely on such a large number of third parties who, combined, represent over half (64 percent) of the relevant commerce in this case, ensures that my pass-through results are a robust and reliable measure of the overcharge that has been passed through to all or virtually all Consumer IPP Class members.¹¹³⁷

¹¹³⁶ The third parties for which I have data do not include any customers classified as traders. However, traders are in the business of finding opportunities to sell beef at higher prices than the amount that they pay. There is no reason as a matter of economics that a trader would have lower pass-through than other distributors.

¹¹³⁷ My pass-through analysis is based on almost 7 million total observations (aggregated at the monthly level by product, third party, and customer when available) across all third parties.

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Figure 56. Pass-Through Regression Results¹¹³⁸



491. With a weighted average pass-through rate of [REDACTED] across 32 third parties, my analysis demonstrates that purchasers of beef products passed through all changes in cost. As such, [REDACTED]

¹¹³⁸ Third party transaction data. Sales totals for [REDACTED] are not available because the produced data only included average weekly unit prices and average weekly unit costs, without any unit or dollar amounts to determine the volume associated with the sales. As such, pass-through models for [REDACTED] [REDACTED] are at the weekly level, by product. Although [REDACTED] sales data was provided without

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percent of the overcharge on beef products would have been passed through to Consumer IPP Class members.

VII. ESTIMATION OF RELEVANT SALES/DAMAGES

492. In the section below, I discuss the methodology by which I calculate class-wide commerce, which is used (in connection with the estimated overcharges and pass-through rate) to calculate damages to the Consumer IPP Class.

VII.A. Estimation of Class-Wide Commerce

493. To estimate damages to Class members resulting from Defendants’ alleged misconduct, I must estimate the share of Defendants’ and alleged Co-Conspirators’ relevant sales of Class products to direct purchasers that are ultimately resold to Class members. There are three steps to estimating this portion of sales to direct purchasers: (1) identify relevant direct purchasers that are within the Consumer IPP Class supply chain; (2) estimate the portion of sales to these relevant direct purchasers which would ultimately be resold to consumers; and (3) estimate the portion of these relevant nationwide direct purchaser sales that are made in Class States.

494. I identified relevant direct purchasers by classifying the customers that comprise the top 95 percent of sales across all Defendants.¹¹³⁹ These classifications included relevant direct purchasers, such as grocery stores, grocery wholesalers, and multichannel distributors, and non-relevant customers, such as further processors, foodservice distributors, and exporters.¹¹⁴⁰

495. Since some relevant direct purchasers ultimately supply Consumer IPP Class members as well as non-Class members, simply including all their purchases would overestimate the relevant commerce. I therefore further subset the relevant customers’ purchases based on the customer classification. For instance, only a portion of multichannel distributors’ sales (the amount resold to grocery stores or grocery wholesalers) would be relevant. On the other hand, virtually all grocery wholesalers’ and grocery stores’ purchases are ultimately resold to consumers. I

any date information, I was able to estimate a pass-through rate based on the sales and cost amounts included with each observation. The pass-through model for Troyer is at the transaction level, by product and customer.

¹¹³⁹ See backup production.

¹¹⁴⁰ Some of the remaining customers were classified based on their names as detailed in my backup. However, most of the bottom 5% of sales of Defendants were left unclassified, resulting in a conservative estimate of relevant commerce for the Class.

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am able to estimate the relevant portion of sales for each of these customer classifications using the Defendant and third-party data produced in this case.

496. In order to calculate the portion of the multichannel distributor purchases that go to the grocery channel and to the foodservice channel, I rely on the data from the top customers of the multi-channel distributors for which I have been provided transaction data: Colorado Boxed Beef, Porky, Quirch, and Troyer. These multi-channel distributors are among the largest of the multi-channel distributors direct purchasers present in the Defendant transaction data. For each of these distributors, I classified the customers comprising the top 70% (or more) of sales as “retail channel” or not. **Figure 57** shows the breakdown of sales based on these classifications for each of these multi-channel distributors. Taking a weighted average of the estimate for each of these multi-channel distributors yields 72 percent of sales to the retail channel.

Figure 57. Multi-Channel Distributor Sales by Channel

Third Party	% of Sales Categorized	% of Sales to Retail Channel
[REDACTED]	90.11%	61.99%
[REDACTED]	74.78%	75.94%
[REDACTED]	95.64%	71.90%
[REDACTED]	99.02%	86.00%
Simple Avg	89.89%	73.96%
Weighted Avg	87.24%	72.68%

Source: Third Party Data.

497. I apply this 72 percent estimate to all customers that I have categorized as multi-channel distributors to estimate the portion of commerce sold to retail.

Figure 58. Relevant Nationwide Consumer IPP Purchases by Primal, August 2014 - 2019

Primal	2014	2015	2016	2017	2018	2019	Total
CHUCK	1,456,464,788	3,187,672,919	2,855,985,652	2,835,075,412	2,855,903,917	2,875,167,717	16,066,270,404
LOIN	1,838,309,343	4,998,622,446	5,034,409,821	5,032,566,260	5,085,046,877	5,115,434,039	27,104,388,786
RIB	1,075,494,055	2,706,453,992	2,858,501,877	2,965,994,089	3,088,328,985	3,197,088,136	15,891,861,134
ROUND	1,410,392,054	2,972,845,266	2,492,525,827	2,469,462,849	2,402,126,111	2,451,923,559	14,199,275,665
Total	5,780,660,240	13,865,594,622	13,241,423,178	13,303,098,610	13,431,405,889	13,639,613,451	73,261,795,989

Source: Defendant Transaction Data.

Note: Totals include 100% of sales to grocery stores and grocery wholesalers, 72% of sales to multichannel distributors, and 0% of sales to all other channels.

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498. The portion of relevant sales attributable to the Class States can be reliably estimated using available data on the nationwide population for each state. It is reasonable that the total population in a given state is proportional to the amount of beef indirectly purchased by consumers in that state. My estimate of the portion of relevant nationwide purchases that are made in Class States using population data is shown below in **Figure 59**. As shown the percentage is stable at just over 55 percent throughout the Class Period. Based on the consistency of the percentages over the 6 years, I use 55 percent for the portion of nationwide commerce that is attributable to the Class States.

Figure 59. Consumer IPP State Population Proportion¹¹⁴¹

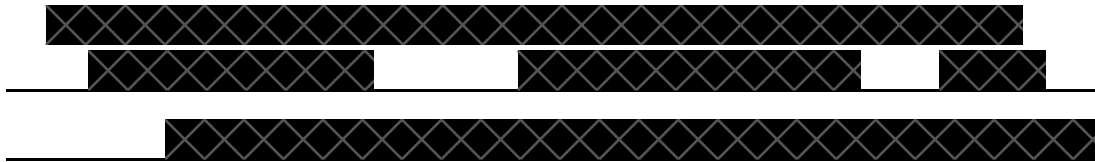
	2014	2015	2016	2017	2018	2019
IPP States						
Arizona	6,732,873	6,832,810	6,944,767	7,048,088	7,164,228	7,291,843
California	38,586,706	38,904,296	39,149,186	39,337,785	39,437,463	39,437,610
District of Columbia	663,603	677,014	687,576	697,079	704,147	708,253
Florida	19,853,880	20,219,111	20,627,237	20,977,089	21,254,926	21,492,056
Illinois	12,885,092	12,859,585	12,821,709	12,779,893	12,724,685	12,667,017
Iowa	3,110,643	3,122,541	3,133,210	3,143,734	3,149,900	3,159,596
Kansas	2,901,861	2,910,717	2,912,977	2,910,892	2,912,748	2,912,635
Maine	1,331,217	1,329,098	1,332,348	1,335,743	1,340,123	1,345,770
Massachusetts	6,764,864	6,797,484	6,827,280	6,863,560	6,885,720	6,894,883
Michigan	9,932,033	9,934,483	9,954,117	9,976,752	9,987,286	9,984,795
Minnesota	5,452,665	5,484,002	5,525,360	5,569,283	5,608,762	5,640,053
Missouri	6,059,130	6,075,411	6,091,384	6,111,382	6,125,986	6,140,475
Montana	1,022,657	1,031,495	1,042,137	1,053,862	1,061,818	1,070,123
Nebraska	1,879,955	1,892,059	1,906,483	1,916,998	1,925,512	1,932,571
Nevada	2,818,935	2,868,531	2,919,555	2,972,097	3,030,725	3,090,771
New Hampshire	1,334,257	1,337,480	1,343,694	1,350,395	1,355,064	1,360,783
New Mexico	2,090,236	2,090,071	2,092,555	2,092,844	2,093,754	2,099,634
New York	19,653,431	19,657,321	19,636,391	19,593,849	19,544,098	19,463,131
North Carolina	9,937,295	10,037,218	10,161,802	10,275,758	10,391,358	10,501,384
North Dakota	738,736	755,537	756,114	756,755	760,062	763,724
Oregon	3,965,447	4,018,542	4,093,271	4,147,294	4,183,538	4,216,116
Rhode Island	1,056,511	1,056,886	1,057,816	1,056,554	1,059,338	1,058,158
South Dakota	849,670	854,663	863,693	873,732	879,386	887,127
Tennessee	6,544,617	6,595,354	6,651,277	6,714,748	6,778,180	6,830,325
Utah	2,938,327	2,983,626	3,044,241	3,103,540	3,155,153	3,203,383
West Virginia	1,850,569	1,843,332	1,832,435	1,818,683	1,805,953	1,795,263
Wisconsin	5,753,199	5,762,927	5,775,170	5,793,147	5,809,319	5,824,581
IPP State Total	176,708,409	177,931,594	179,183,785	180,271,536	181,129,232	181,772,060
<i>IPP State Portion</i>	<i>55.50%</i>	<i>55.48%</i>	<i>55.46%</i>	<i>55.45%</i>	<i>55.42%</i>	<i>55.36%</i>
Total U.S. Population	318,386,329	320,738,994	323,071,755	325,122,128	326,838,199	328,329,953

¹¹⁴¹ United States Census Bureau, “2010-2020 State Totals,” available at <https://www2.census.gov/programs-surveys/popest/datasets/2010-2020/state/totals/>.

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VII.B. Calculation of Damages

499. Damages are found by applying the relevant overcharge and the pass-through rate to the relevant sales. The table below depicts damages to Consumer IPP Class members during the Class Period. Damages are calculated as the relevant nationwide Consumer IPP purchases reduced by 45 percent to ensure damages attributable only to the Class States. This commerce total is then multiplied by the overcharge percentage of [REDACTED] percent (see **Figure 50**) and a pass-through rate of [REDACTED] percent.



Source: Defendant Transaction Data.

Note: Damages are calculated as relevant nationwide Consumer IPP purchases from Defendants reduced by 45% to account for purchases that occurred outside of Class States and then multiplied by the overcharge rate [REDACTED] from Figure 50 and the pass through rate of [REDACTED].

I declare under penalty of perjury under the laws of the United States that the foregoing is true and correct to the best of my knowledge and belief and that this report was executed in Irvine, California, this 25th day of September 2024.

Russell W. Mangum III

Appendix A

RUSSELL W. MANGUM III



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CURRENT POSITION

Executive Vice President, Cirque Analytics; 2021–present

EDUCATION

Ph.D., Economics, University of Southern California, 1995
M.A., Economics, University of Southern California, 1992
M.A., Christian Apologetics (highest honors) Biola University, 2023
B.A., Economics (honors), Calif. State University, Fullerton, 1988

SPECIALIZED EXPERIENCE, RESEARCH, OR INTEREST

Antitrust; Commercial Disputes; Intellectual Property; Statistics and Econometrics, Valuation

PAST POSITIONS

2013–2022	Professor, Economics, Concordia University Irvine (retired)	Irvine, CA
2021	Visiting Researcher, Univ of Winchester, Sch of Bus, Law, and Tech	Winchester, UK
2007–2021	Senior Vice President, Nathan Associates Inc.	Irvine, CA
2002–2012	Associate Adjunct Professor, Economics, Univ of Southern California	Los Angeles, CA
2001–2007	Vice President, Analysis Group, Inc.	Los Angeles, CA
2001	Manager, PricewaterhouseCoopers, Financial Advisory Services	Los Angeles, CA
1998–2001	Managing Associate, Nathan Associates Inc.	Arlington, VA
1998–2000	Adjunct Professor, Economics, Johns Hopkins University	Washington, DC
1995–1998	Economist, U.S. Federal Trade Commission	Washington, DC

COURSES TAUGHT

Principles and Intermediate Economics, Managerial Economics, Statistics and Econometrics, Finance and Financial Markets, Environmental Economics, Business Info. Technology, Advanced Topics in Economics

EXPERIENCE SUMMARY

Dr. Mangum has over 30 years of experience in economic analysis, research, and teaching. His consulting practice centers on economic analysis and damages in matters related to IP and technology, antitrust, and complex commercial disputes, with particular application to class certification, statistical analysis, and use of survey data. Dr. Mangum's experience as an expert is extensive, with testimony in over 125 matters before local, state, and federal courts. Dr. Mangum has taught graduate and undergraduate courses in economics, statistics, finance, and econometrics at several universities, including Johns Hopkins, USC, Pepperdine and Concordia University Irvine. Dr. Mangum's career has included employment by Nathan Associates, Inc., Analysis Group, PricewaterhouseCoopers, and The US Federal Trade Commission.

PROFESSIONAL EXPERIENCE

Intellectual Property

Dr. Mangum has substantial experience in the area of intellectual property damages, including claims related to infringement of patents; FRAND licensing commitments; patent pools; copyrights; and trademarks; as well as theft of trade secrets; false designation of origin; and false advertising. The case contexts in which Dr. Mangum has performed these analyses include:

- Patent infringement and disputes related to:
 - Computer, electronics, and telecommunication industry:
 - Cellular communication network technology;
 - Modem communication devices;
 - Wireless communication network devices (routers, cards, including under FRAND licensing commitments);
 - Handheld device navigation applications;
 - NIC hardware and chipsets;
 - Semiconductors;
 - Webswitching and IP router network hardware;
 - Wired and wireless portable electronic temperature sensor devices;
 - Electronic eReader devices;
 - Digital TV Tuners under FRAND licensing commitments;
 - Automated lip-sync animation used in video games;
 - Data encryption devices.
 - VoIP network telephony services.
 - Video streaming services and applications.
 - Medical devices:
 - Artificial vertebral disc implants;
 - Trocar seals for laparoscopic surgery;
 - Spinal fusion implants;
 - Breast biopsy devices;
 - Remote medical information monitoring technology;
 - Intraarterial guidewire and embolic filter devices.
 - Energy
 - Specialized valves used in oil refining;
 - Electric utility management systems;
 - Wide-area real time phasor measurement and monitoring.
 - Food and agriculture:
 - Additive-infused confections;

- Nutritional supplements;
- New variety of late ripening white grapes;
- Structures and methods utilized in the growing of grapes and raisins;
- Cold extraction coffee processes.
- Business software
 - eProcurement;
 - Business intelligence;
 - Design and simulation;
 - Call routing software;
 - Computer tracking;
 - Program and application management;
- Clothing and clothing design
 - Padded athletic shirts/pants; shoes; headwear; accessories;
- Miscellaneous
 - Electronic nicotine delivery systems (NDS)
 - Personal watercraft devices and accessories
 - Consumer advertising design via use of digital media
 - Automated stapling machines used in bed manufacturing
 - Specialized hardware and control systems used in high-rise elevators
 - Electronic exchange systems for trading of commodities futures contracts
 - Electronic data management system used in public transportation projects
 - Document and print inspection systems
- Trademark, trade dress, or copyright infringement related to:
 - Environmental Cleanup/Transport/Disposal Services
 - IT Network equipment (transceivers and switches);
 - Sponsorship with motorsports, automotive repair tools and devices, beverages and snacks, and apparel;
 - Banking services;
 - Skincare and cosmetics;
 - Real estate property acquisition services;
 - Online dining reservation and payment services;
 - Internet search engine terms related to retail sales of food and arranged food products;
 - Enterprise Resource Planning (ERP) software;
 - Veterinary Teleradiology (online/internet) Services;
 - Devices and software for online mobile device data extraction and IT network devices;

- Clothing, shoes, and jewelry;
- Advertising and marketing through wireless mobile communications;
- Motion picture trademarks in the manufacture of clothing;
- Furniture products (mechanized and non-mechanized);
- Portable combustion engines and portable air compressors
- Infant care products;
- Homeopathic products;
- Postal measuring products;
- Scented candle products;
- Children's toys;
- Art and art exhibits
- Design plans for a theme amusement park.
- Theft of trade secrets related to:
 - Neuroendovascular coils and catheters;
 - Cold extraction coffee processes
 - Electronic mechanisms for payment processing;
 - Technical documents, Product features, customer data, and marketing methods/models related to Systems for General Floor Hospital Monitoring of patient vital statistics;
 - Training methods, pricing models, and customer status databases related to Enterprise Resource Planning (ERP) software;
 - Customer data and information, and pricing models related to employee pension and benefits insurance brokerage services;
 - Government contracted research into laser vibrometry;
 - Devices and software for mobile device data extraction;
 - IT system design and implementation for the US defense industry;
 - Electronic engineering and CAD packages used in US naval warcraft architecture;
 - Methods for mathematical simulations for the pricing of mortgage backed securities;
 - Soy coffee alternative products;
 - Design, development, marketing, and manufacturing of toys;
 - Computer game accessories.
- False advertising, false designation of origin, or unauthorized use of likeness related to:
 - Chemical dependence treatment services;
 - Real estate property acquisition services;
 - Security monitoring systems and services;
 - Consumer appliances;
 - Medical data printer systems;

- Furniture products;
- Composed music and lyrics used in television commercials;
- Restaurant meals and shopping services;
- Internet advertising services via advertorial placement on publishers' websites;
- Nutritional supplements and beverages;
- Orthodontic and Dental devices and services;

Data Storage/Unauthorized Usage/Breaches

- Contractual dispute of data storage practices (data storage services industry)
- Contractual dispute of data collection and use practices (internet browsing services industry)
- Improper/fraudulent data security measures and resulting data breach (non-profit data maximization services industry)
- Improper/fraudulent data security measures and resulting data breach (file-sharing and data transfer services industry)
- Unauthorized capture of personal data (internet browsing services and social media services industry)

Competition/Antitrust

Dr. Mangum has substantial experience in the area of competition and antitrust, including analyses of relevant product and geographic markets, market power, monopolization, and likelihood of monopolization from impending events. These analyses usually include statistical and econometric analysis of market data to identify the extent of competition, and the magnitude of competition. The case contexts in which Dr. Mangum has performed these analyses include:

- Evaluated common impact and estimated damages, for direct and indirect purchasers, from price fixing and other conspiracies, including the markets for commercial tissue paper, bulk vitamins, high-end automobiles, ready mix concrete, consumer apparel, Korean noodles, packaged seafood, meat products, interior molded doors, airline travel, and pharmaceuticals.
- Evaluation of alleged competitive foreclosure in the market for sleep apnea products, including relevant markets, market power, and lost profits damages.
- Evaluation of alleged price discrimination across dealers of hardscape building materials.
- Evaluation of antitrust claims and affirmative defenses of patent misuse related to required terms in patent license programs for flash memory semiconductors and systems.
- Evaluation of market segments, market channels, and cost pass-through in the market for DRAM-containing products and NFL brand apparel.
- Estimation of damages related to:
 - A conspiracy to boycott developments in DRAM packaging;
 - Foreclosure of competition in market for footwear insoles and inserts.
- Evaluation of competitive effects of exclusive dealing clause in a franchise agreement.
- Evaluated the competitive effects of exclusive dealing policies regarding:

- Acute care hospital and physician services;
- Customer purchase data exchange related to direct mail advertising and sales;
- Free standing insert advertising (coupon) services;
- Replacement parts for 3-piece body welder systems;
- Interconnect agreements between internet backbone communication services;
- Supply of biological inputs used in creating generic biologic therapeutic treatments;
- Professional sports branded athletic apparel;
- Durable medical equipment;
- Pharmaceuticals.
- Analyzed the competitive effects from wrongful patent application and issuance (fraud on the patent office) related to processes and mechanisms for food preparation and processing.
- Analyzed the likely competitive effects of proposed mergers in various industries, including hospital services, physician services, pharmaceuticals, medical insurance, construction aggregates, supermarkets, auto parts, cable systems and programming, industrial refractories, and computer game software.

Commercial Disputes

- Evaluated damages related to a data breach and the improper capture and transmission of personalized information held and maintained in commercial database(s).
- Evaluated damages related to alleged breach of contract involving collection and retention of personalized information connected to web browsing activity.
- Evaluated damages related to alleged breach of contract involving online storage agreements.
- Evaluated claims of damages related to attempted sale of cold extraction coffee company and the discovery of patents allegedly based on confidential information.
- Evaluated claims of damages related to failure to close a sale for multiple solar energy production properties/companies.
- Estimated damages in the form of lost profits from breach of contract in a services joint venture involving use of indexes and associated data for creation and analysis of international financial securitized and derivatives.
- Estimated damages in the form of disgorgement and lost company value related to brokerage services involving employee pension and benefit programs.
- Evaluated claims of replacement cost and lost profits damages related to alleged interference in the market for femtocell wireless communication products.
- Evaluated claims of damages in the form of lost profits and disgorgement of compensation and benefit from alleged unauthorized use of confidential materials in the market for government contracts for research into laser vibrometry.
- Estimated damages from employee theft of HDD computer memory products from s research/testing facility. Calculated value based on historical in-channel market price and on historical costs of manufacturing and sales.
- Evaluated claims of lost profits damages arising from alleged professional malpractice related to commercial development and land use.

- Provided statistical and data analysis of invoices for disaster recovery and construction services. Estimated lost profits related to alleged fraud, breach of contract, and tortious interference.
- Estimated damages related to alleged breaches of contract, including:
 - Contract involving the development and sale of solar power generation projects;
 - Contract involving the supply of active ingredients in nutraceuticals;
 - Non-solicitation agreement between government defense contracting companies;
 - Contract for concession services at amusement parks;
 - Contract for creation and promotion of credit reporting services;
 - Contract for supply of MLB jerseys used in creation of sports memorabilia;
 - Contract for blending and supply contracts for specialized non-dairy beverages;
 - Non-compete clauses (restaurant lease, franchising, structural steel fabrication);
 - Contract for earning and redeeming of frequent flyer miles;
 - Contract for purchase of television airtime on a local over-the-air station;
 - Contract for representation and sale of television programming;
 - Royalty contract regarding design and functionality elements use in toys;
 - Contract for technology and support from software conference bridge systems;
 - Contract for conference calling services and long-distance calls connection services.
- Estimated damages from defamation related to the launch of a clinic for medical disorders.
- Evaluated claims by the CA Coastal Commission related to lost recreational value from proposed coastal bluff seawall construction.
- Evaluated concepts and methods for calculating proceeds from a Qi Tam suit related to improper medical lab billing practices.
- Estimated damages related to Quantum Meruit claims involving use of software to manage viewing and storage of electronic medical images.

Employment and Labor

- Estimated damages related to lost profits; lost company value, employee training and hiring expense, and/or disgorgement of defendant's profits in multiple cases related to the alleged breach of non-solicitation agreements and unauthorized use of confidential information by departing employees the insurance and MLM health and wellness industries.
- Estimated lost profits damages and/or disgorgement of defendant's profits in multiple cases related to the alleged breach of non-solicitation agreements and unauthorized use of confidential information involving government defense contracting companies.
- Estimated plaintiff's lost profits and disgorgement of defendant's profits related to the theft of trade secrets by departing employees in the automated emergency/disaster response industry.
- Estimated disgorgement of defendant's profits related to the theft of trade secrets by departing employees in the naval engineering industry.
- Provided statistical analysis of employee timecard and pay data to estimate instances of underpayment or missed breaks.

- Estimated lost earnings and compensation damages related to an alleged wrongful termination of an employee; evaluated lost wages/earnings, lost retirement benefits, and lost compensation through stock options.
- Estimated damages to an employee/inventor related to exclusion as an inventor from PCT applications following termination from a start-up medical devices company; evaluated the plaintiff's claims of lost share of proceeds from technology share.

Statistical and Econometric Analysis

- Performed regression analysis to evaluate class-wide damages related to class certification in the context of various alleged conspiracies, in several industries and markets including:
 - Ready-mix concrete; Korean Ramen; Interior molded doors; Packaged Seafood; Trans-Pacific airline travel; Broiler chickens; Domestic airlines travel; Pork; Turkey;
- Performed regression analysis to evaluate class-wide cost pass-through in the context of multiple alleged antitrust conspiracies (including building materials, airline travel, food products, apparel, and DRAM).
- Evaluated regression and statistical analysis offered in support of damages related to an alleged breach of non-solicitation agreements and unauthorized use of confidential information by departing employees the insurance and MLM health and wellness industries.
- Evaluated regression and statistical analysis offered in support of damages and common impact in an indirect purchaser class action related to alleged false advertising for nutritional supplement beverages.
- Provided statistical analysis of employee timecard and pay data to estimate instances of underpayment or missed breaks.
- Provided sampling techniques and statistical analysis of customer service database to estimate the extent of use of an allegedly infringing feature in a commercial router.
- Evaluated sampling techniques and extrapolation estimates related to allegedly improper medical billing practices and in the context of damages related to construction defects.
- Provided statistical and econometric analysis of survivorship related to consumer membership attrition in credit reporting programs.
- Provided statistical and econometric analysis of the correlation between purchase of infringing products and consequential purchase of related services.
- Provided statistical analysis and estimate of medical product sales in the absence of data from third party sales force.
- Provided statistical and econometric analysis of conference calling minutes related to alleged intentional interference and unfair competition.
- Conducted statistical analysis of incremental costs in support of lost profits calculations.

EXPERT WITNESS EXPERIENCE (SINCE 2019)

- *MGA Entertainment Inc. v. Clifford “T.I.” Harris, et al.*, United States District Court, Central District of California, Western Division (2024). Testified at trial and deposition, and issued multiple expert reports on behalf of counter-defendant related to misappropriation of intellectual property (name, likeness, trade dress) related to the promotion and sale of toys.
- *Bernadine Griffith, et al. v. TikTok, Inc. and Bytedance, Inc.*, United States District Court, Central District of California (2024). Provided deposition testimony on behalf of plaintiff class involving damages and common impact related to the collection and use of personalized information connected to web browsing activity.
- *Touchstream Technologies, Inc., v. Charter Communications, Inc., et al.*, United States District Court, Eastern District of Texas, Marshall Division (2024). Provided deposition testimony on behalf of plaintiff related to damages for alleged patent infringement involving video streaming technology.
- *Touchstream Technologies, Inc., v. Comcast Cable Communications, LLC, D/B/A Xfinity, et al.*, United States District Court, Eastern District of Texas, Marshall Division (2024). Provided deposition testimony on behalf of plaintiff related to damages for alleged patent infringement involving video streaming technology.
- *American Compliance Technologies Inc., v. Advanced Chemical Transport Inc.*, United States District Court, Middle District of Florida, Tampa Division (2024). Submitted an expert report on behalf of counterclaimants related to the alleged trademark infringement involving environmental clean-up, transport, and disposal services.
- *In Re Pork Antitrust Litigation*, United States District Court, Northern District of Minnesota (2024). Provided testimony in depositions (3) and issued multiple reports on behalf of plaintiff class related to the economic effects of an alleged conspiracy to constrain capacity and increase prices in the pork industry.
- *Lisa Bodenburg v. Apple Inc.*, United States District Court, Northern District of California (2024). Submitted an expert report on behalf of plaintiff class related to damages involving alleged breach of contract for cloud storage services.
- *Tyler Baker et al. v. ParkMobile LLC*, United States District Court for the Northern District of Georgia, Atlanta Division (2024). Submitted an expert report on behalf of plaintiff class related to damages involving a data breach and the improper capture and transmission of personalized information held and maintained in commercial database(s).
- *In Re Broiler Chicken Antitrust Litigation*, United States District Court, Northern District of Illinois (2024). Testified at a bench trial (evidentiary hearing), and in depositions (4), and issued multiple expert reports on behalf of plaintiff class related to the economic effects of an alleged conspiracy to constrain capacity and increase prices in the broiler chicken industry.
- *In Re: Packaged Seafood Products Litigation*, United States District Court, Southern District of California (2024). Provided testimony in depositions (3), testified at trial (evidentiary hearing), and issued multiple expert reports on behalf of direct purchaser plaintiff class related to class certification and estimation of class wide damages in an antitrust case involving alleged collusion on the prices for packaged seafood.
- *MSP Recovery Claims Series v. Express Scripts Inc., et al.*, United States District Court, Northern District of Illinois, Western Division, (2023). Provided deposition testimony on behalf of plaintiff classes (direct and indirect) and issued multiple expert reports related to the economic effects of an alleged anticompetitive practices involving the pharmaceutical drug Acthar.

- *Q Industries Inc. v. O'Reilly Automotive Inc., et al.*, United States District Court, Northern District of California (2023). Provided deposition testimony and issued an expert report on behalf of O'Reilly defendant related to alleged trademark infringement involving retail supply of automotive equipment.
- *Q Industries Inc. v. Test-Rite Products Corp., et al.*, United States District Court, Northern District of California (2023). Provided deposition testimony, and issued an expert report on behalf of defendant Test-Rite Corp. related to alleged trademark infringement involving wholesale supply of automotive equipment.
- *In Re Turkey Antitrust Litigation*, United States District Court, Northern District of Illinois, Eastern Division (2023). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff class related to the economic effects of an alleged conspiracy to increase prices and restrain supply in the turkey industry.
- *Microvention Inc. v. Balt USA, LLC, et al.*, United States District Court, Central District of California (2023). Provided deposition testimony, and issued an expert report on behalf of Defendant involving damages related to alleged misappropriation of trade secrets involving neuroendovascular medical devices.
- *In Re Blackbaud, Inc. Customer Data Security Breach Litigation*, United States District Court for the District of South Carolina, Columbia Division (2023). Provided deposition testimony, and issued an expert report on behalf of plaintiff class related to damages involving a data breach and the improper capture and transmission of personalized information held and maintained in commercial database(s).
- *Dr. Joseph Ciccio, et al., v. SmileDirect Club Inc., et al.*, United States District Court, Middle District of Tennessee, Nashville Division, (2022). Provided deposition testimony, and issued an expert report on behalf of plaintiff class involving damages related to allegations of false statements regarding orthodontic and dental treatment.
- *Lauren Adele Oliver v. Meow Wolf Inc., et al.*, United States District Court for the District of New Mexico (2022). Provided deposition testimony, and issued an expert report on behalf of plaintiff involving damages related to alleged copyright infringement involving art and art exhibits.
- *Sprint Communications Company LP v. Cequel Communications, LLC, et al.*, United States District Court, District of Delaware (2022). Testified at a bench trial (evidentiary hearing), and in deposition, and issued multiple expert reports on behalf of plaintiff related to lost profits and royalty damages from alleged patent infringement involving VoIP telephony network services.
- *VRtoysone, LLC, et al v. Disney Interactive Studios, Inc.*, United States District Court, Central District of California, Western Division (2022). Submitted an expert report on behalf of Defendant involving damages related to alleged patent infringement involving video games.
- *Patrick Calhoun, et al. v. Google LLC*, United States District Court, Northern District of California (2021). Provided testimony in depositions (2) , and issued multiple expert reports on behalf of plaintiff class involving damages and common impact related to alleged breach of contract involving the collection and retention of personalized information connected to web browsing activity.
- *CPI Security Systems Inc. v. Vivint Smart Home Inc. et al.*, United States District Court, Western District of North Carolina, Charlotte Division (2021). Provided deposition testimony, and issued an expert report on behalf of plaintiff involving unjust enrichment and royalty damages related to alleged false advertising and unfair competition related to security monitoring systems and services.

- *Martifer-Silverado Fund I, LLC and Silverado Power LLC v. Talesun Solar USA, Ltd.*, Superior Court of California, San Francisco County (2021). Provided trial and deposition testimony on behalf of Defendant, related to alleged breach of contract involving solar energy projects.
- *Javo Beverage Co., Inc., v. Stephen Corey*, American Arbitration Association (2021). Provided trial (arbitration) and deposition testimony on behalf of respondent related to breach of contract and misappropriation of confidential information and technology in the market for coffee extracts.
- *Andrea Williams and James Stewart (class reps) v. Apple Inc.*, United States District Court, Northern District of California (2021). Submitted an expert report, and issued an expert report on behalf of plaintiffs related to damages involving alleged breach of contract regarding provision of electronic file storage.
- *QC Manufacturing, Inc., v. Solatube International, Inc. and Brighter Concepts, Inc. dba Solatube Home Daylight*, JAMS Arbitration, Los Angeles, CA (2020). Provided trial (arbitration) testimony, and issued an expert report on behalf of complainant related to a breach of contract (litigation settlement agreement) involving whole house fans.
- *In Re Domestic Airline Travel Antitrust Litigation*, United States District Court, District of Columbia (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff class related to the economic effects of an alleged conspiracy to constrain capacity in the domestic airline travel industry.
- *RV Skincare Brands LLC v. Digby investments Ltd., Quickbox LLC, et al.*, United States District Court, Southern District of New York (2020). Submitted an expert report on behalf of certain defendant related to damages from alleged counterfeit sales and trademark infringement involving fulfillment of skincare product commerce.
- *Cisco Systems Inc. et al. v. Zahid Hassan Sheikh et al.*, United States District Court, Northern District of California (2020). Provided deposition testimony, and issued an expert report on behalf of certain defendants related to damages from alleged counterfeit sales and trademark infringement involving transceiver and switching IT network equipment.
- *San Diego Country Credit Union v. Citizens Equity First Credit Union*, United States District Court, Southern District of California (2020). Provided deposition testimony, and issued an expert report on behalf of plaintiff related to damages flowing from fraudulent declaration in the registration of a trademark involving credit unions.
- *Sprint Communications Company LP v. Atlantic Broadband Finance LLC, et al.*, United States District Court, District of Delaware (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff related to lost profits royalty damages from alleged patent infringement involving VoIP telephony network services.
- *Sprint Communications Company LP v. Charter Communications Inc. et al.*, United States District Court, District of Delaware (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff related to lost profits and royalty damages from alleged patent infringement involving VoIP telephony network services.
- *Sprint Communications Company LP v. Mediacom Communications Corp.*, United States District Court, District of Delaware (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff related to lost profits and royalty damages from alleged patent infringement involving VoIP telephony network services.

- *Sprint Communications Company LP v. TPC Global LLC et al.*, United States District Court, District of Delaware (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff related to lost profits and royalty damages from alleged patent infringement involving VoIP telephony network services.
- *Sprint Communications Company LP v. Wideopenwest Inc. et al.*, United States District Court, District of Delaware (2020). Provided deposition testimony, and issued multiple expert reports on behalf of plaintiff related to lost profits and royalty damages from alleged patent infringement involving VoIP telephony network services.
- *S&P Dow Jones Indices LLC and SPDJ Singapore Pte Ltd. v. BSE Ltd.*, United States District Court, Northern District of California (2020). Provided trial (tribunal) testimony, and issued an expert report on behalf of claimants and counter-respondants for an arbitration concerning damages from breach of contract in a service joint venture related to the use of indexes and associated data for creation and analysis of international financial securitized and derivatives.
- *In Re: Molded Doors Indirect Purchaser Antitrust Litigation*, United States District Court, Eastern District of Virginia, Richmond Division (2020). Provided deposition testimony, and issued multiple expert reports related to class certification and the merits phase of an antitrust case on behalf of an indirect purchaser plaintiff class related to the evaluation of common impact, pass-through, and class wide damages involving alleged collusion on the prices for interior molded doors.

RESEARCH PAPERS AND PUBLICATIONS

- “FRAND Commitments and Royalties for Standard Essential Patents”, with S. Bosworth and E. Matolo, in Complications and Quandaries in the ICT Sector, Bharadwaj, Gupta, and Devaiah eds., Ch. 2, Springer Open, ISBN 978-981-10-449570, 2018.
- “Corrective Advertising in Lanham Act Damages: The Use and Misuse of Past Advertising Expenditures” with S. Bosworth and E. Matolo, *The Trademark Reporter*, May-June Volume, 2017.
- “The Case for Admitting Settlement License Agreements in a Reasonable Royalty Analysis,” with S. Conroy and R. Knudsen, 2011, *Les Nouvelles*, Volume XLVI No. 4, 2012.
- “Cost Analysis,” with J. Kinrich and A. Meister, in Intellectual Property Damages, Guidelines and Analysis, 2004 supplement, M. Glick, L. Reymann, and R. Hoffman, eds., Chapter 14a, Wiley: New York.
- “Analysis and Measurement of Damages in Patent Infringement Actions,” with J. Kinrich, 2003, proceedings of Practicing Law Institute.

PAST OR PRESENT AWARDS, PROFESSIONAL MEMBERSHIPS

Outstanding Antitrust Litigation Achievement in Economics, American Antitrust Institute, 2023
Outstanding Antitrust Litigation Achievement in Economics, American Antitrust Institute, 2019
 American Antitrust Institute, advisory board member
 American Bar Association, member
 American Economic Association, member
 Licensing Executives Society, member, chapter chair
 Los Angeles County Bar Association, member
 Los Angeles Intellectual Property Law Association, member
 Orange County Bar Association, member
 Orange County Patent Law Association, member

Appendix B: Materials Relied Upon

Court Documents

- Cargill's Answers to All Plaintiffs' First Set of Interrogatories to Defendants Cargill, Dec. 6, 2023.
- Consumer Indirect Purchaser Plaintiffs' Sixth Amended Class Action Complaint, *In re: Cattle and Beef Antitrust Litigation*, United States District Court for the District of Minnesota No. 0:20-CV-01319, July 29, 2022.
- Declaration of Eric Brandt, July 10, 2024.
- JBS Responses and Objections to All Plaintiffs' Sixth Set of Interrogatories to JBS Defendants at, Sept. 13, 2024.
- JBS Responses and Objections to Plaintiffs' Second Set of Interrogatories to the JBS Defendants, Dec. 6, 2013.
- JBS Supplemental Responses and Objections to All Plaintiffs' Second Set of Interrogatories, May 24, 2024.
- National Beef Responses and Objections to All Plaintiffs' First Set of Interrogatories, Dec. 1, 2023.
- Tyson's Objections and Responses to All Plaintiffs' First Set of Interrogatories, Dec. 1, 2023.

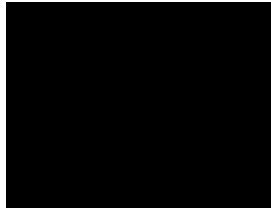


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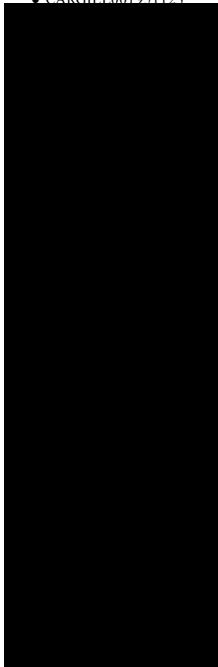
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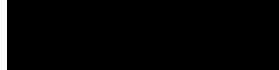
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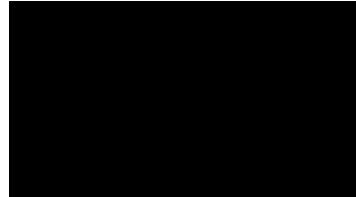
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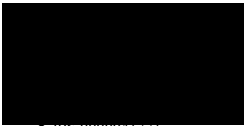
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Depositions

- Deposition of Al Byers, June 26, 2024, and Exhibits
- Deposition of Andrew Cohen, May 16, 2024, and Exhibits
- Deposition of Bill Rupp, Aug. 19, 2024, and Exhibits
- Deposition of Brian Highfill, Mar. 12, 2024, and Exhibits
- Deposition of Charles Weinreis, July 16, 2024, and Exhibits
- Deposition of Dan Brooks, June 19, 2024, and Exhibits
- Deposition of David Holloway, Apr. 26, 2024, and Exhibits
- Deposition of Donald Kieffer, Mar. 21, 2024, and Exhibits
- Deposition of Eric Guettermann, Mar. 21, 2024, and Exhibits
- Deposition of John Keating, Sept. 4, 2024, and Exhibits
- Deposition of John Keating, Sept. 5, 2024, and Exhibits
- Deposition of Kellee Kriese, Feb. 1, 2024, and Exhibits
- Deposition of Kenneth Peterson, July 19, 2024, and Exhibits
- Deposition of Larry Rose, July 23, 2024, and Exhibits
- Deposition of Lindsey Lemoi, July 30, 2024, and Exhibits
- Deposition of Monte Lowe, July 18, 2024, and Exhibits
- Deposition of Randy Carlgren, July 10, 2024, and Exhibits
- Deposition of Scott Sorensen, May 13, 2024, and Exhibits
- Deposition of Shannon Grassl, Apr. 25, 2024, and Exhibits
- Deposition of Simon McGee, July 10, 2024, and Exhibits
- Deposition of Terry Wilkerson, July 26, 2024, and Exhibits
- Deposition of Thomas Klein, June 18, 2024, and Exhibits
- Deposition of Timothy Klein, Aug. 7, 2024, and Exhibits
- Deposition of William McLaurin, June 25, 2024, and Exhibits

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Defense Data

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- Legal Request - Beef sales - F2012.xlsx
- Legal Request - Beef sales - F2013.xlsx
- Legal Request - Beef sales - F2014.xlsx
- Legal Request - Beef sales - F2015.xlsx
- Legal Request - Beef sales - F2016.xlsx
- Legal Request - Beef sales - F2017.xlsx
- Legal Request - Beef sales - F2018.xlsx
- Legal Request - Beef sales - F2019.xlsx
- Legal Request - Beef sales - F2020.xlsx
- Legal Request - Beef sales - F2021.xlsx
- DOJ - CIVIL INVESTIGATIVE DEMAND REQUEST only competitor sales F2010 - ytd F2021.xlsx
- Legal Request - Beef sales - F2010.xlsx
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- National Beef - Beef Sales Appendices Decoded - based on 11.20.2023 data answers.xlsx
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- Cargill's answers to data questions, dated December 1, 2023
- Cargill's answers to data questions, dated January 23, 2023.

- JBS's answers to data questions, dated March 8, 2024.
- JBS's answers to data questions, dated November 20, 2023.
- Letter from Holley C. M. Horrell to Daniel O. Herrera, dated July 1, 2022.
- Letter from JBS Counsel to Daniel O. Herrera, dated November 10, 2023
- National Beef's answers to data questions, dated March 3, 2024.
- National Beef's answers to data questions, dated March 7, 2024.
- National Beef's answers to data questions, dated May 18, 2022.
- National Beef's answers to data questions, dated November 20, 2023.

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Tyson's answers to data questions, dated December 22, 2023.

Tyson's answers to data questions, dated February 21, 2023.

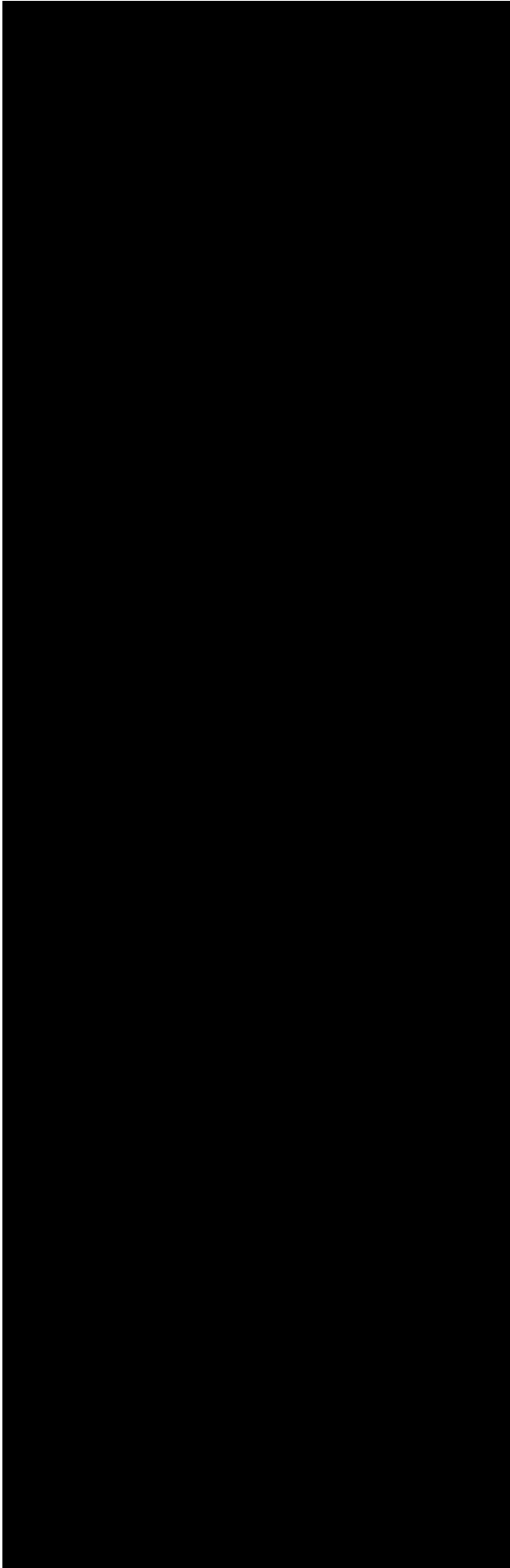
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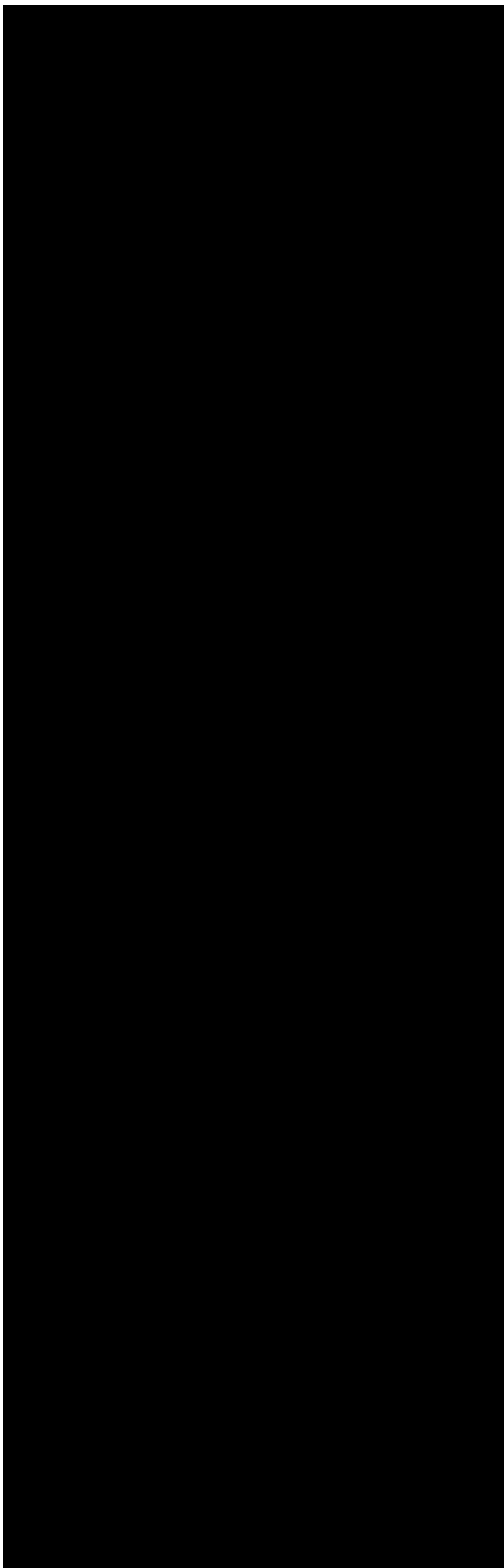
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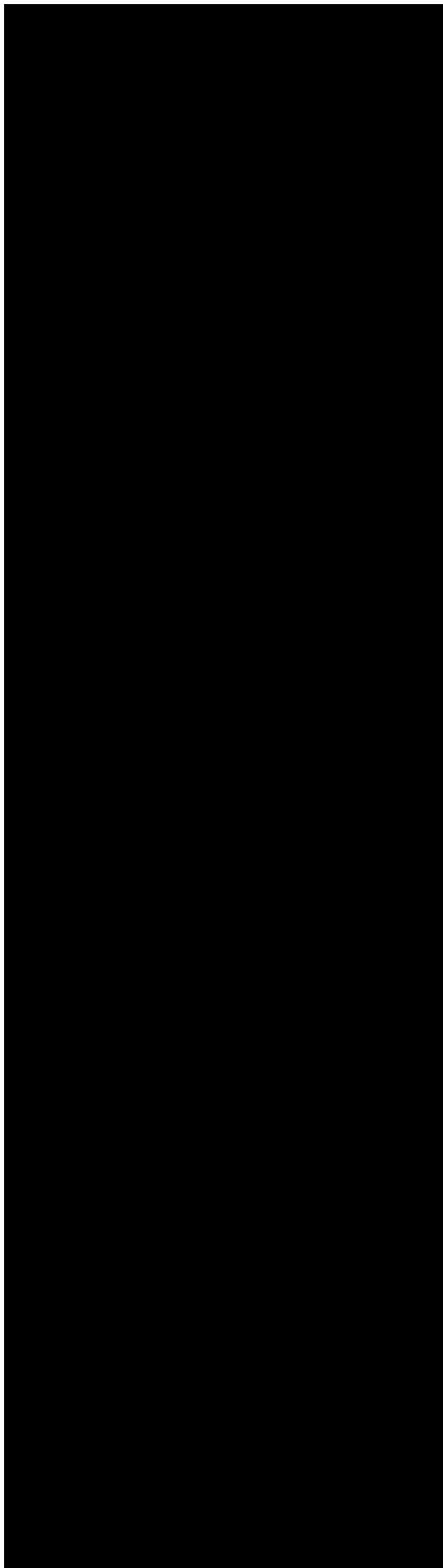
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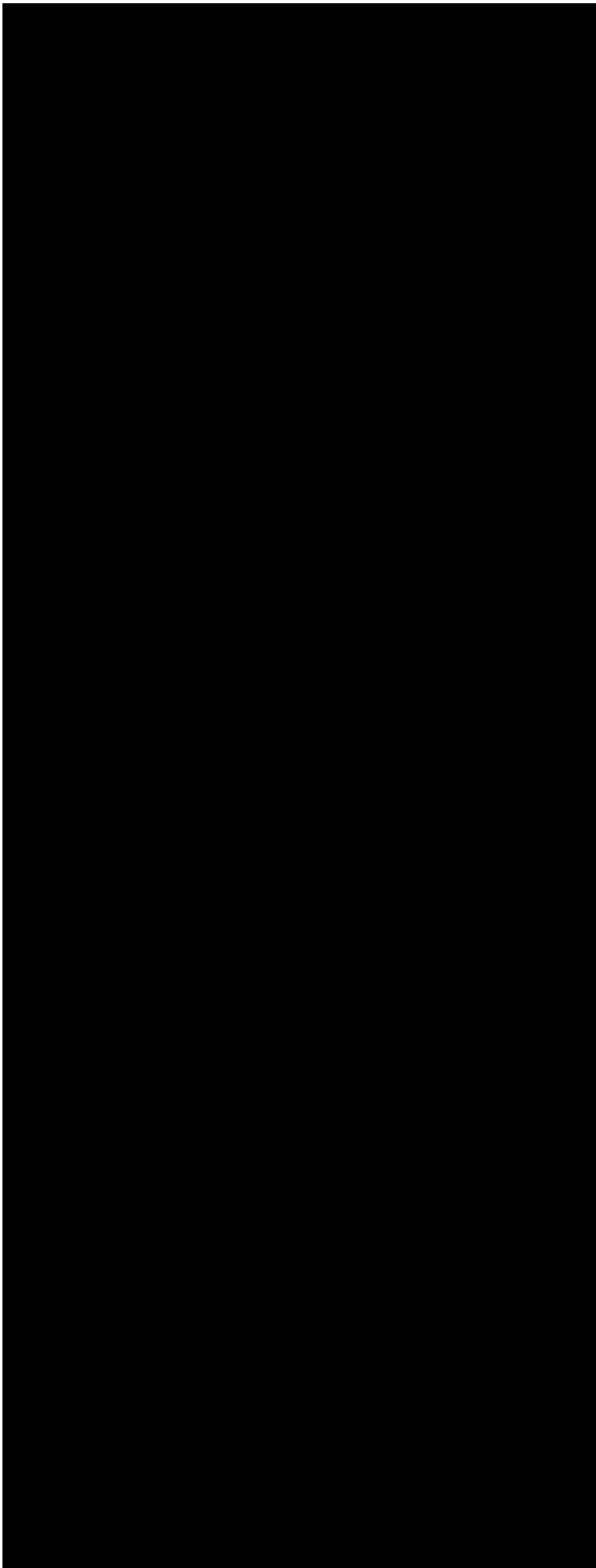
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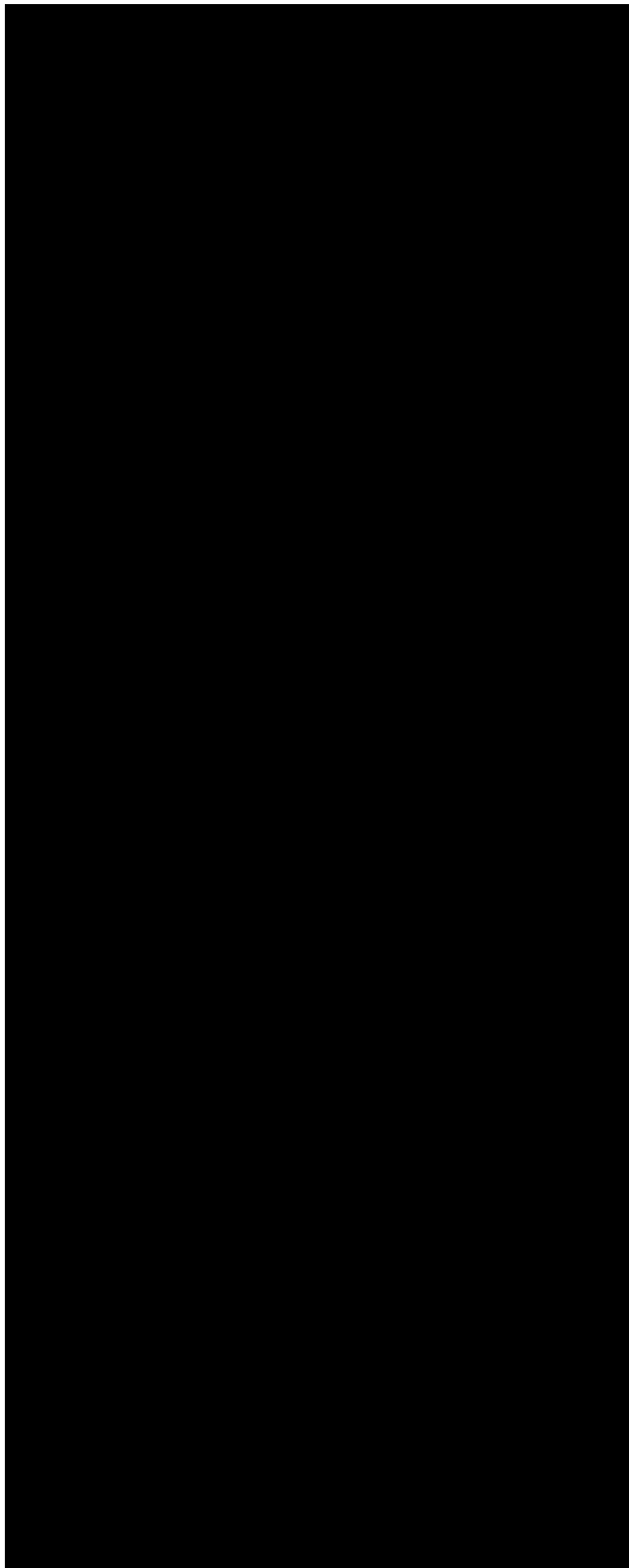


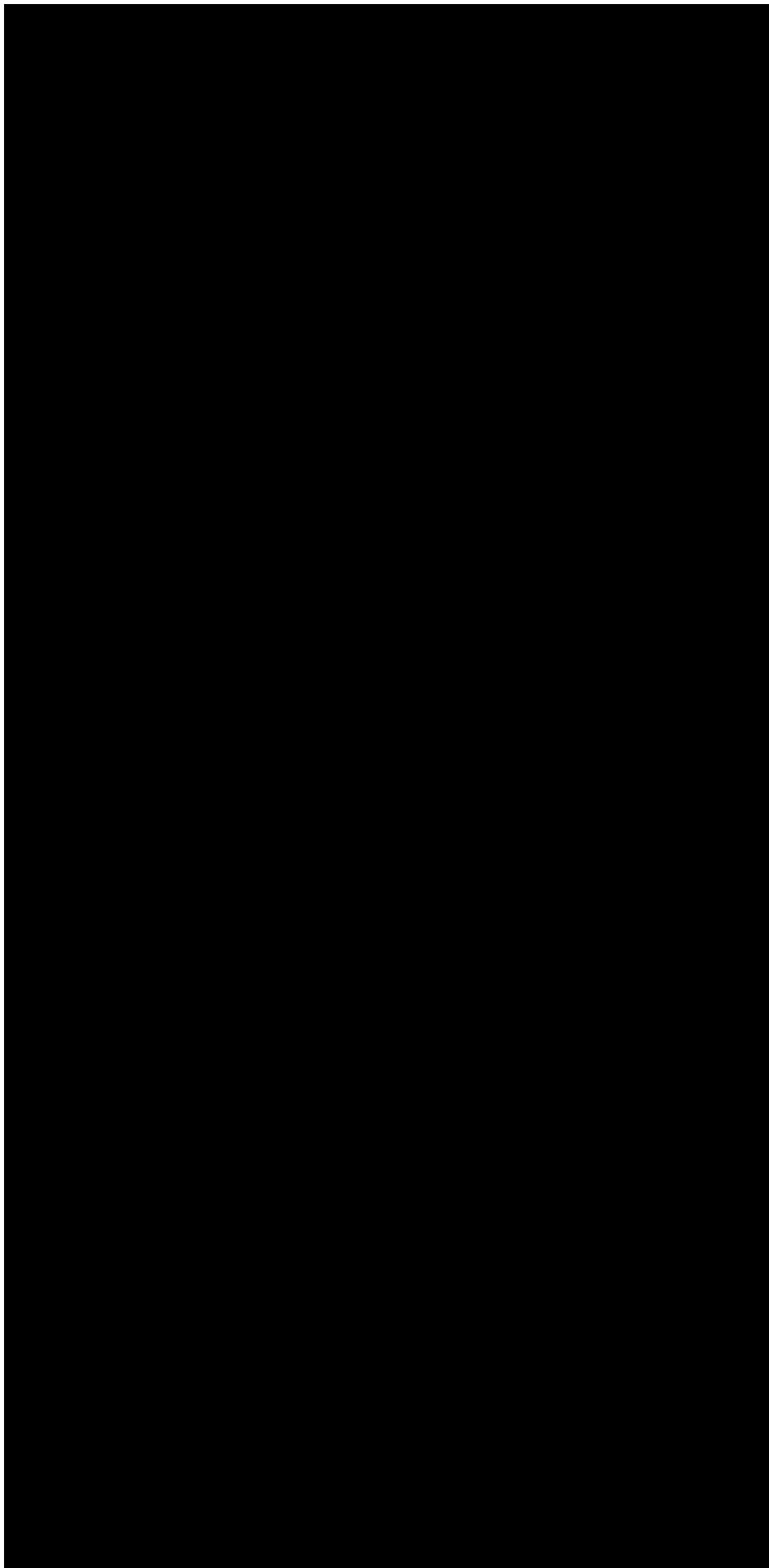


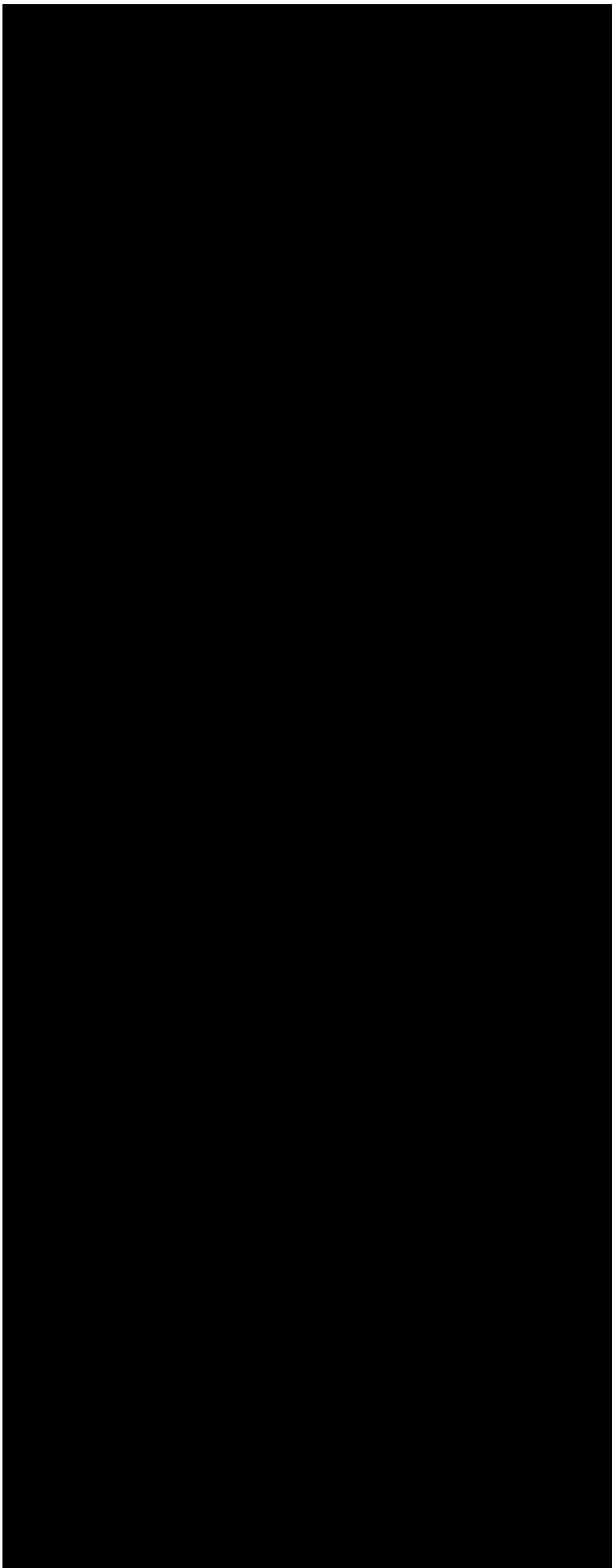


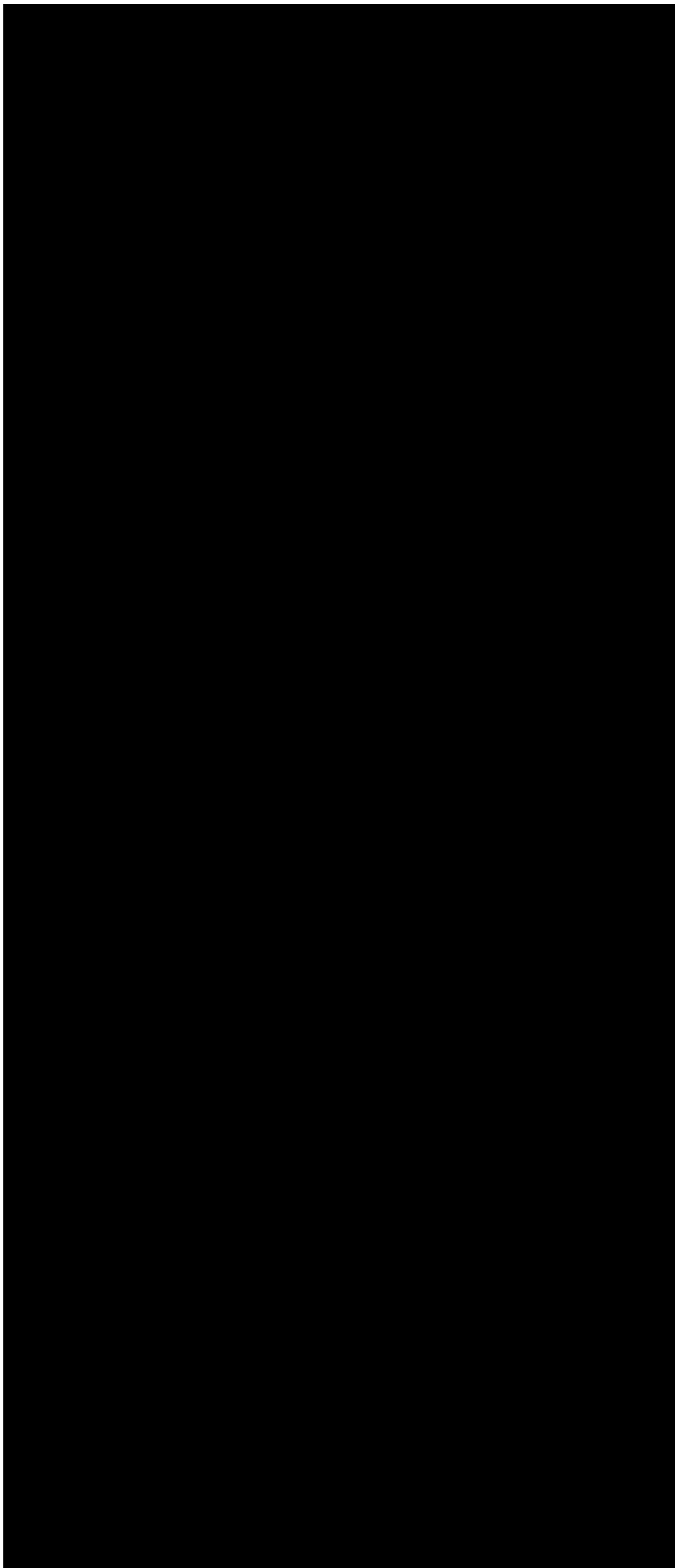


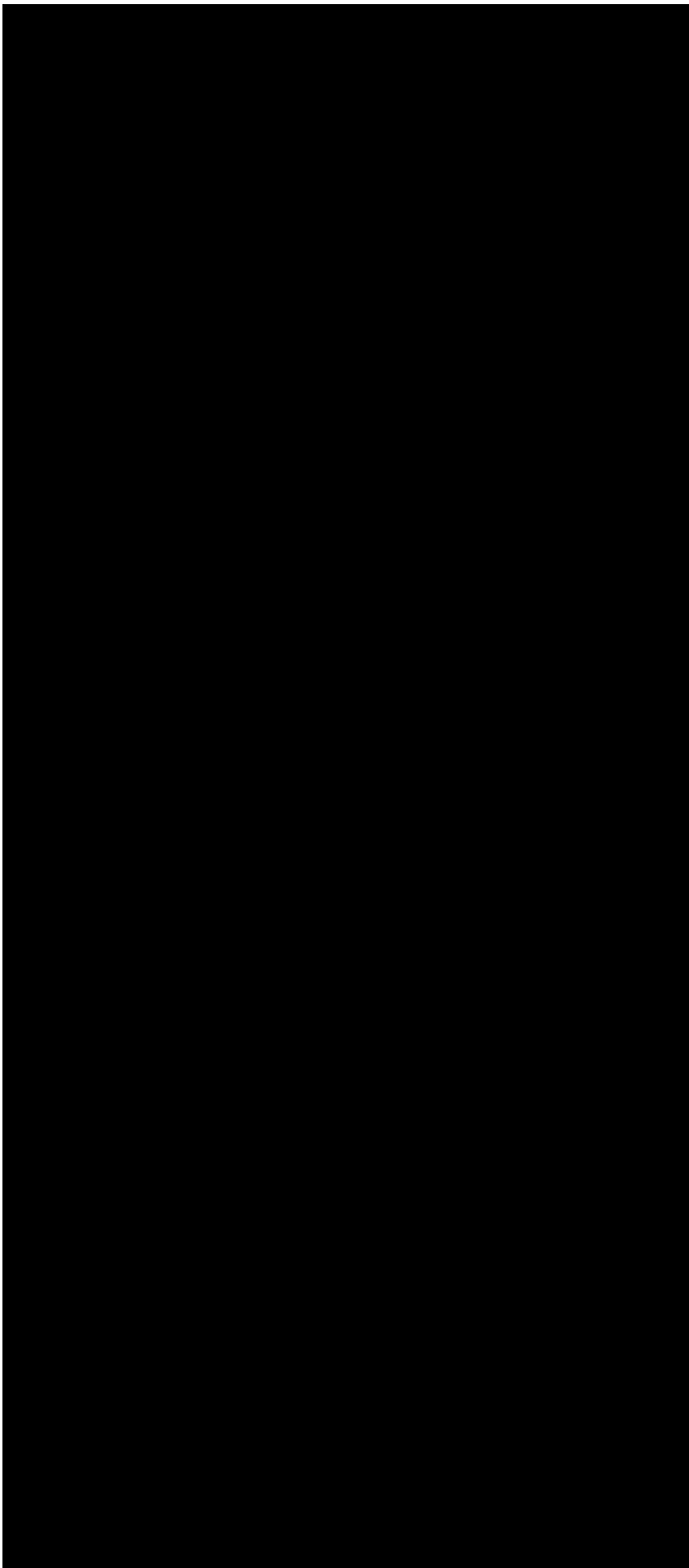


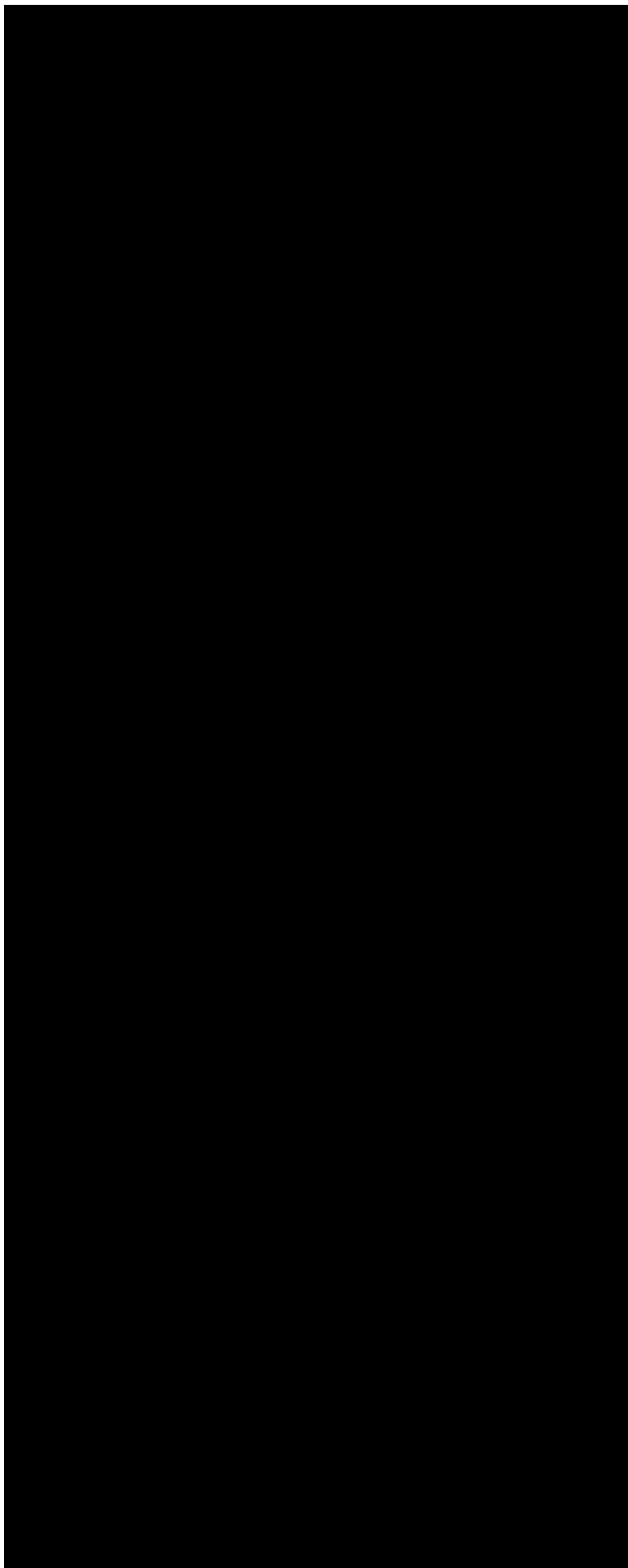


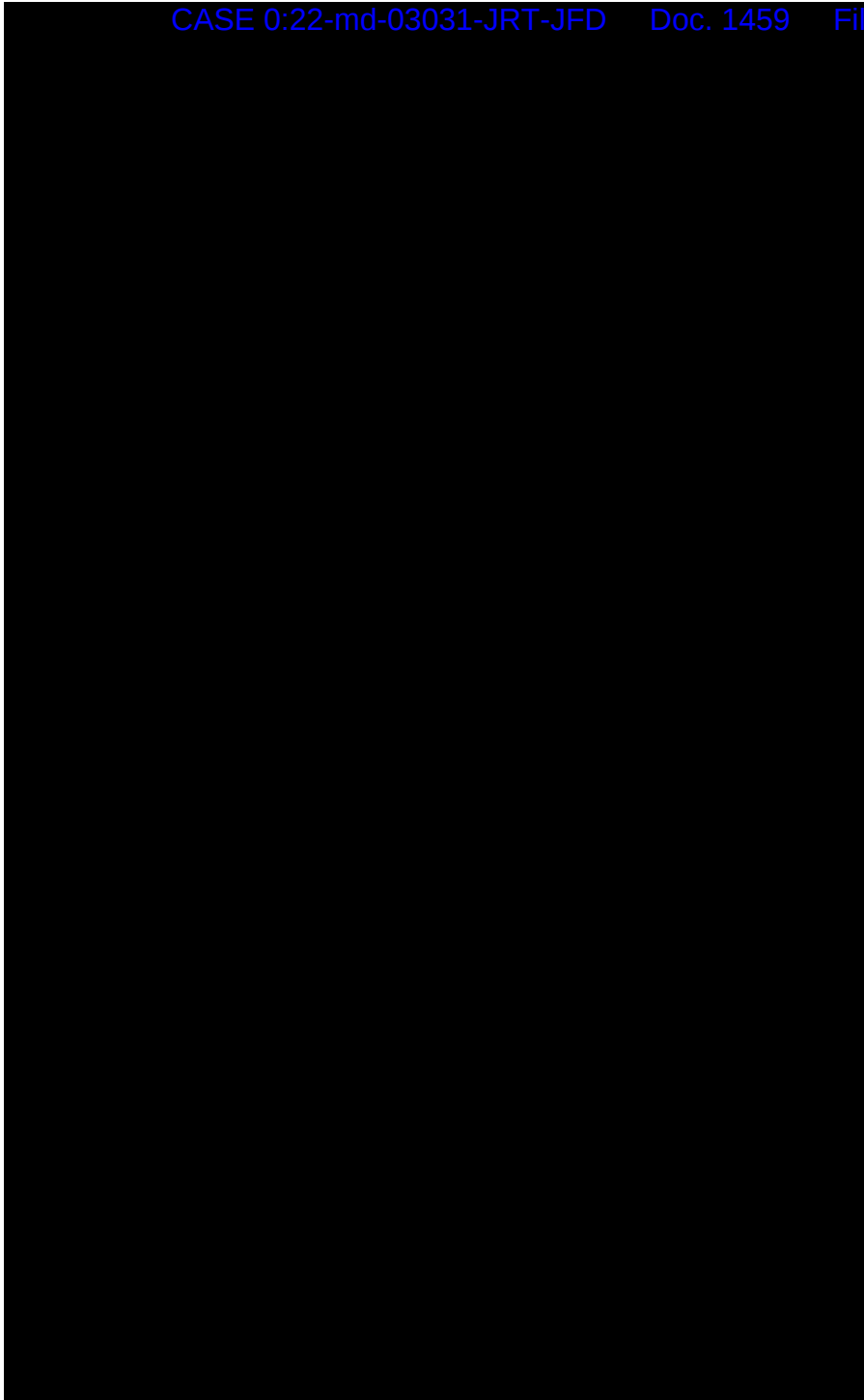












Appendix C

Third Party Data

My pass-through analysis relies on the sales data produced by 32 third parties. Most of these third parties produced purchase data as well, which was used as a cost measure when none was available in the sales data itself.¹ The sales and purchase datasets have been reviewed and standardized by staff under my direction. Common adjustments to the individual third party's datasets, unless stated otherwise, are:

1. Identifying and excluding transactions that are non-beef products, non-relevant beef products (e.g., offal, cooked, seasoned or processed meats, employee sales, and samples).
2. Identifying and excluding transactions with foreign ship or bill address.
3. Standardizing beef products into categories based on primal cut (e.g., chuck, loin, rib, and round).
4. Standardizing measure of transaction volume into pounds where the information is available.
5. Estimating transaction volume in pounds using product descriptions and/or package size type fields for transactions where the actual weight information is unavailable.
6. Standardizing customer and supplier (or vendor) names where the information is available.

The resulting datasets were then combined for analysis. At the combined level, non-relevant beef products – offal, beef as an ingredient, cooked beef, seasoned beef, and marinated beef – are then identified and excluded. I also excluded outlier sales transactions, which are identified as sales transactions with *per pound* price below 1 dollar or above 50 dollars, as well as those with *unit* price below 1 dollar or above 1,000 dollars. Furthermore, I excluded outlier sales transactions with price-to-cost ratio lower than 0.3 or higher than 3. Relevant sales and costs are then aggregated by month, third party, customer (where applicable), and product to calculate monthly weighted average prices and costs. Unless stated otherwise, the cost measure included in the sales transaction data was used to calculate the monthly weighted average cost. When purchase cost information was available only in the separate file, I used a 30-day moving average to estimate a relevant cost measure before merging it to the sales data. For the purchase data produced at the weekly level, I estimated a moving average of four weeks. The natural log of the average monthly price is regressed on the natural log of the average monthly cost (controlling for customer and product factors, as described in the report) to determine third party-specific pass-through coefficients. I've included a high-level summary of each third party's data, after limiting to relevant primal cuts, below. Further detail of the cleaning and processing steps can be found in each third party's codes within the backup production to this report.

¹ Specifically, I use the purchase cost as a cost measure for [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

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Appendix D

Appendix E

