

Information Sharing and Collusion: General Principles and the Agri Stats Experience

by

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Abstract

We review some central conclusions from the economics literature regarding the likely impact of information sharing by industry suppliers on consumer welfare. We also review the specific information sharing activities undertaken by Agri Stats. We conclude that although some elements of Agri Stats' activities may have had the potential to enhance consumer welfare, several elements of the activities reflect features of information sharing that the common wisdom suggests are relatively likely to harm consumers.

Keywords: information sharing; collusion; Agri Stats.

August 2022

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We thank Brianna Alderman, Roger Blair, Peter Carstensen, Eduardo Pontual Ribeiro, and Dennis Weisman for very helpful comments and observations.

I. Introduction

Agri Stats (Agri Stats, Inc. and its subsidiary, Express Markets) provides information to its customers, who are suppliers of meat products, including chicken, turkey, beef, and pork. The information that Agri Stats provides to its customers includes statistics on the outputs of industry suppliers, the size of their herds or flocks, the inputs they employ in the production process, the costs of these inputs, and the suppliers' earnings. Agri Stats develops "customized reports and graphs to identify for each customer exactly how every level of their operation performed in a given period, and how they compared to similar organizations in the industry." In principle, these reports can help to identify "efficiency opportunities on a farm, flock, or plant level." Agri Stats' stated mission is to "improve the bottom line profitability for our participants by providing accurate and timely comparative data while preserving the confidentiality of individual companies."¹

Agri Stats has been accused of participating in "a conspiracy ... to fix, raise, maintain, and stabilize the price of pork" and some of the other protein commodities identified above.² The accusations reflect the possibility that the information collected and disseminated by Agri Stats might help industry suppliers to develop and sustain collusive agreements that harm their customers. For example, the information might facilitate an agreement among industry suppliers to reduce their outputs, thereby increasing the prices at which the outputs are sold.

The ensuing analysis is not intended to assess Agri Stats' guilt or innocence in this regard. Rather, the analysis reviews the information sharing activities that typically tend to enhance or reduce the welfare of final consumers (e.g., individuals who purchase chicken, turkey, beef, or pork). The ensuing analysis also explains Agri Stats' information sharing activities and discusses the potential effects of these activities on consumer welfare. We find that although some elements of Agri Stats' activities may have had the potential to enhance consumer welfare, several other elements entail features of information sharing that the common wisdom suggests are relatively likely to harm consumers.³

The analysis proceeds as follows. Sections II and III review central conclusions in the economics literature regarding the conditions under which information sharing typically enhances or reduces the welfare of final consumers. Section IV summarizes key elements of the common

¹ Agri Stats, Inc., *Partnership and Services*, <https://www.agristats.com/partnership>.

² *In re Pork Antitrust Litigation*, Direct Purchaser Plaintiffs' Third Amended and Consolidated Class Action Complaint, No. 18-cv-1776-JRT-HB at ¶2.

³ Our focus on consumer welfare is standard, although some authors emphasize the importance of examining the impact of market activities on the competitive process. See Gregory J. Werden, *Antitrust's Rule of Reason: Only Competition Matters*, 79 *Antitrust Law Journal* 713 (2014).

wisdom regarding the circumstances under which information sharing is relatively likely to reduce consumer welfare. These circumstances pertain to the characteristics of the industry in which the information is shared, the type of information that is shared, when it is shared, and how it is shared. Section V identifies some key characteristics of the industries in which Agri Stats facilitated information sharing. Section VI discusses some distinguishing features of this information sharing. Section VII identifies elements of the sharing that seem relatively likely to have either enhanced or reduced consumer welfare. Section VIII provides concluding observations.

II. Information Sharing that Enhances Consumer Welfare

In principle, information sharing by industry suppliers can either benefit or harm consumers. The types of information sharing that are relatively likely to benefit consumers include the following.

A. Information Sharing that Informs Consumer Choice

Public dissemination of information about retail prices and product characteristics (including product availability and performance) can help consumers determine how to secure the highest quality products at the lowest prices. This public sharing of information benefits consumers directly by enabling them to make better informed purchasing decisions and by reducing the time and effort they spend acquiring information about product prices and characteristics. The public sharing can also benefit consumers indirectly by enhancing competitive pressure on industry suppliers to operate diligently to satisfy consumers' needs and desires.

Of course, the potential benefits of information disseminated by industry suppliers must be assessed relative to corresponding information supplied by other entities. To illustrate, the Economic Research Service of the U.S. Department of Agriculture regularly publishes reports on current and likely future conditions (including demand, supply, and prices) in the livestock, dairy, and poultry industries.⁴ If the information supplied by industry suppliers largely replicates the data supplied by a government agency, then the industry data will do relatively little to help consumers make better decisions.

B. Information that Facilitates Benchmarking

Information sharing can spur industry suppliers to work more diligently to serve consumers even when the information is not shared with consumers. When an industry supplier learns that its operation is less efficient than its rivals' operations, the supplier will naturally be motivated to

⁴ See <https://www.ers.usda.gov/topics/animal-products>.

improve its operating efficiency.⁵ In essence, information sharing among industry suppliers can facilitate performance benchmarking, which can motivate industry laggards to match the performance of industry leaders. The resulting improved performance can benefit consumers by triggering more intense competition among more efficient industry suppliers.

C. Information that Helps Tailor Output to Industry Conditions

Industry suppliers typically must make decisions before the financial implications of the decisions are known with certainty. For example, a beef producer must decide how many cattle to process before the exact market price of beef is known. In such settings, information sharing that helps industry suppliers predict the price of beef that ultimately will prevail can benefit consumers by inducing output decisions that better match consumer needs.⁶

To explain this conclusion more generally, consider a setting where industry suppliers produce a homogeneous product and each supplier determines the amount of output it will supply before the stochastic price that equates industry demand and supply becomes known. In such a setting, improved information about a determinant of demand that affects all suppliers will lead the suppliers to: (i) increase their output when the shared information indicates that a high level of demand is likely; and (ii) reduce their output when the shared information indicates that a low level of demand is likely. The equilibrium price reduction caused by the increased output is of substantial value to consumers when demand is high. The equilibrium price increase caused by the reduced output reduces consumer welfare when demand is low. However, this welfare reduction is relatively limited when demand is low. On balance, the expected increase in welfare when demand is high exceeds the expected reduction in welfare when demand is low. Consequently, the information sharing increases expected consumer welfare in the absence of collusion in this setting.⁷

D. Information that Reduces Investment Uncertainty

Information sharing also can benefit consumers by motivating increased industry investment. Industry suppliers may be reluctant to invest in their operations (by expanding their capacity or increasing their research and development activities, for example) if they are very uncertain about the likely financial returns the investment will deliver. Information sharing that

⁵ Knowledge that one's performance lags the performance of similarly situated rivals can help a supplier to overcome "stagnation" and "paradigm blindness." Greg Billbrey, *Benchmarking and Cost-Production Relationships*, Advances in Pork Production: Proceedings of the 2008 Banff Pork Seminar (2008).

⁶ As noted in Section II.A, the benefit of information supplied by industry suppliers must be assessed relative to the corresponding information provided by other (e.g., government) entities.

⁷ See Kai-Uwe Kühn and Xavier Vives, *Information Exchanges among Firms and their Impact on Competition*, European Commission (1995).

enables industry suppliers to predict future industry conditions, and thus likely returns to investment, more accurately can render the investment more attractive.⁸ The resulting increased investment can benefit consumers by facilitating lower equilibrium prices (due to increased output and/or reduced unit production costs) and enhanced product quality.⁹

E. Information that Facilitates Interoperability and Successful Research Collaboration

Information sharing also can benefit consumers in settings where different firms produce different components of ever-changing final products (e.g., cellular telephones). In such settings, the sharing of information about the design and capabilities of inputs can facilitate their interoperability and promote the adoption of input standards that facilitate rapid, pronounced improvement in the performance of final products.¹⁰

Information sharing also can facilitate collaborative research and development that enables industry suppliers to pool their collective knowledge and thereby discover new ways to better serve consumers.¹¹

III. Information Sharing that Reduces Consumer Welfare

Although information sharing can benefit consumers, it can also harm consumers. The types of information sharing that are relatively likely to harm consumers include the following.

A. Information that Helps Tailor Prices to Prevailing Industry Conditions

For the reasons explained in Section II.C above, the sharing of information about a determinant of demand that affects all suppliers can increase consumer welfare in some settings.

⁸ A risk neutral decision-maker often values an improved forecast of future outcomes more highly than does an otherwise identical risk averse decision-maker. See Roger D. Blair and Richard E. Romano, *The Influence of Attitudes Toward Risk on the Value of Forecasting*, 103 Quarterly Journal of Economics, 387 (1988).

⁹ As the Organisation for Economic Co-operation and Development observes, “Information exchanges may ... have beneficial effects on technology innovation markets characterized by high investment costs, where any uncertainty as to future developments of demand may stymie investment into new products.” See Organisation for Economic Co-operation and Development, *Information Exchanges Between Competitors under Competition Law*, OECD Policy Roundtables, DAF/COMP(2010)37 (2011) at 10.

¹⁰ As the OECD observes, “[I]nformation sharing may be necessary to share important technical information, enabling the design of standard compatible components allowing products to interconnect.” *Id.* at 392.

¹¹ As the U.S. Federal Trade Commission and U.S. Department of Justice observe, “In order to compete in modern markets, competitors sometimes need to collaborate. Competitive forces are driving firms toward complex collaborations to achieve goals such as expanding into foreign markets, funding expensive innovation efforts, and lowering production and other costs. Such collaborations often are not only benign but procompetitive.” See Federal Trade Commission and Department of Justice, *Antitrust Guidelines for Collaborations Among Competitors* (2000) at 1.

However, such sharing can reduce consumer welfare in other settings. To illustrate, suppose each industry supplier sets a price for its product before consumer demand for the product becomes known. If information sharing endows each supplier with more accurate knowledge of the demand it is likely to face, the suppliers will: (i) set relatively high prices when the shared information indicates that industry demand is likely to be high; and (ii) set relatively low prices when the shared information suggests that demand is likely to be low. The price increases reduce consumer welfare, and the welfare reduction is relatively pronounced when demand is high. The price reductions increase consumer welfare, but the increase is relatively limited when demand is low. On balance, the expected reductions in consumer welfare exceed the corresponding increases in welfare in this setting, causing the information sharing to reduce consumer welfare.¹²

B. Competitively Sensitive Information that Facilitates Collusive Agreements

Some types of information are deemed to be “competitively sensitive” because the information either reveals or informs accurate predictions about the competitive activities that individual industry suppliers are likely to undertake or already have undertaken. Competitively sensitive information includes “firm-specific information regarding costs, pricing, trading terms, strategic plans, marketing strategies, market shares, [and] levels of output ...”¹³

The sharing of competitively sensitive information can help all industry producers understand the gains and losses that potential collusive agreements would entail for each producer. This common understanding can facilitate agreement on a collusive arrangement that entails comparable benefits and costs for all colluding producers. Thus, the sharing of competitively sensitive information can harm consumers by helping industry producers fashion a collusive agreement.

C. Information Sharing that Documents the Ability to Punish Defectors

Colluding firms benefit when their agreement to reduce industry supply increases the equilibrium price of the product they sell. However, an increased equilibrium price renders additional sales more profitable and thereby enhances incentives for individual suppliers to defect from the collusive agreement to restrict output. To deter such defection, firms can threaten to increase their collective output considerably if a defection is detected, thereby reducing the equilibrium price.¹⁴ The sharing of information about production capacities can help document the

¹² Kühn and Vives, *supra* note 7, explain why, more generally, the effects of information sharing on consumer welfare in the absence of collusion vary with the type of information that is shared and prevailing industry conditions, including whether industry suppliers set prices or output levels.

¹³ OECD, *supra* note 9 at 119.

¹⁴ See Edward Green and Robert Porter, *Noncooperative Collusion under Imperfect Price Information*, 52 *Econometrica*, 87 (1984). In settings where each industry supplier normally serves a particular

credibility of such threats and thereby help to prevent defections from collusive agreements.¹⁵

The sharing of output data also can help to detect defections from a collusive agreement. To illustrate, suppose all industry suppliers agree to reduce their output by 10% in order to raise the equilibrium price each supplier receives for its product. The timely sharing of data on each supplier's sales can reveal quickly and accurately the identity of any supplier that has defected from the collusive agreement. A supplier that knows its defection will be quickly detected (and punished) will anticipate little gain from the defection, and so become more likely to abide by the terms of the collusive agreement.

In summary, several types of information sharing can reduce consumer welfare. However, for the reasons explained in Section II, other types of information sharing can enhance consumer welfare. The likely welfare effects of any specific type of information sharing depend on the type of information shared, when and how it is shared, and prevailing industry conditions.

IV. Conventional Wisdom

Even though one cannot draw unambiguous conclusions about the impact of information sharing on consumer welfare, it is possible to identify types of information sharing that are relatively likely to enhance (or reduce) consumer welfare. Conventional wisdom that reflects the considerations identified in Sections II and III holds that, all else equal, information sharing is more likely to harm consumers if the following conditions prevail.

A. The Information is Not Revealed to the Public

For the reasons explained in Section II.A, information that is shared publicly can help consumers identify the industry suppliers that charge the lowest prices and deliver the highest

geographic region, industry suppliers can threaten to “flood the market” in the geographic region normally served primarily by the supplier that defects from the collusive agreement. See B. Douglas Bernheim and Michael Whinston, *Multimarket Contact and Collusive Behavior*, 21 *RAND Journal of Economics*, 1 (1990). Colluding suppliers also can punish a defector by offering price concessions to the defector's primary buyers by refusing to share valuable planning information with the defector, or by encouraging suppliers of vital inputs to withhold the inputs from the defector. See George J. Stigler, *A Theory of Oligopoly*, 72 *Journal of Political Economy*, 44 (1964).

¹⁵ To illustrate, Archer Daniels Midland (ADM) and three other producers of lysine conspired to increase the price at which they sold the amino acid. “ADM made its decision to build a plant that would more than double world capacity in 1989; when its Asian co-conspirators doubted its size, ADM gave unrestricted tours of the Decatur plant to Ajinomoto and Sewon managers and engineers.” See John Connor, *The Global Lysine Price-Fixing Conspiracy of 1992-1995*, 19 *Review of Agricultural Economics*, 412 (1997) at 416.

levels of quality. If this potential role of information sharing is eliminated, then the sharing is less likely to benefit consumers, *ceteris paribus*.

This is not to say that public sharing of information necessarily enhances consumer welfare. Consumers can be harmed by public announcements of intended price increases, for example, if industry suppliers employ the announcements to coordinate price increases.¹⁶

B. The Information is Competitively Sensitive

As indicated in Section III.B, the sharing of competitively sensitive information can facilitate the identification of mutually acceptable collusive actions and reduce independent decision-making. Sharing data on prices charged and quantities sold also is helpful for detecting deviations from collusive agreements on prices or output levels. Consequently, the conventional wisdom holds that the sharing of competitively sensitive information generally is relatively likely to reduce consumer welfare.¹⁷

C. The Information is Disaggregated

The data that individual firms share can be revealed to rival suppliers exactly as the data are reported, i.e., in disaggregated form. Alternatively, the data can be shared in aggregated form. For example, only the average of the outputs reported by the firms might be shared. Data aggregation of this sort limits the ability of a producer to learn commercially sensitive information about particular rivals, and can thereby reduce the extent to which information sharing harms consumers in at least two ways. First, aggregated data can make it more difficult to identify the gains and losses that a proposed collusive agreement would entail for each industry supplier. Data aggregation can thereby make it more difficult for industry suppliers to forge a collusive

¹⁶ See, for example, Matthew Bennett and Philip Collins, *The Law and Economics of Information Sharing: The Good, the Bad and the Ugly*, 6 *European Competition Journal* 311 (2010); and Joseph Harrington, *Collusion in Plain Sight: Firms' Use of Public Announcements to Restrain Competition*, *University of Pennsylvania discussion paper*, May 25, 2021, available at https://papers.ssrn.com/sol3/papers.cfm?abstract_id=3644714 (“Harrington”). Harrington explains how public announcements of planned output reductions, and calls for corresponding reductions by industry rivals, might facilitate coordinated reductions in industry output. Of course, the ultimate impact of such announcements can depend upon their perceived credibility.

¹⁷ The conventional wisdom is reflected, for example, in the following observations. “[E]xtensive exchange of information regarding pricing, output, major costs, marketing strategies and new product development is ... [relatively] likely to have anticompetitive implications”. OECD, *supra* note 9 at 296. Federal Trade Commission and Department of Justice, *supra* note 11 at 15: “[T]he sharing of information relating to price, output, costs, or strategic planning is more likely to raise competitive concern than the sharing of information relating to less competitively sensitive variables”.

agreement.¹⁸ Second, aggregated data typically do not reveal the identity of a particular firm that has deviated from a collusive agreement, making it difficult to punish only the actual defector. When the threat of targeted punishment is reduced, firms can become more emboldened to defect from a collusive agreement.¹⁹

Of course, even the sharing of aggregated data can sometimes facilitate effective collusion. To illustrate, when suppliers agree to raise equilibrium industry prices by reducing output, aggregated sales data can reveal whether the promised (aggregate) output reduction has been delivered.²⁰

D. Information is Collected and Analyzed by an Industry Supplier

If an industry supplier or group of industry suppliers collect and process data from all industry rivals, then the data collectors necessarily observe data from every industry supplier. Such a process thereby provides some industry suppliers with direct access to fully disaggregated industry data, which can facilitate collusion for the reasons identified above. In principle, this increased potential for successful collusion can be mitigated if a third party (e.g., an independent trade association) collects the data, ensures the disaggregated data remain proprietary, and reveals only aggregated data to industry suppliers.²¹

However, if the independent third party does not simply collect disaggregated data, ensure the data remain proprietary, and share (only) aggregated data more broadly, the operation of the third party can facilitate collusion. It can do so, for example, by auditing the reported data to ensure its accuracy. Although more accurate data can be valuable for planning and benchmarking purposes, an industry supplier that knows its activities will be reported accurately can become

¹⁸ As Bennet and Collins, *supra* note 16 at 331, observe, “Aggregated information at the industry level is unlikely to be useful for coordination. It is difficult to come to a focal point or monitor an understanding when firms cannot see from the information how their individual competitors are performing.”

¹⁹ The following two observations reflect the conventional wisdom that the sharing of disaggregated data generally is more likely to harm consumers than is the sharing of aggregated data. Federal Trade Commission and Department of Justice, *supra* note 11 at 16: “[T]he sharing of individual company data is more likely to raise concern than the sharing of aggregated data that does not permit recipients to identify individual firm data.” OECD, *supra* note 9 at 397: “[T]he more individualized the data, the greater the possibility of identifying confidential and commercially sensitive information.”

²⁰ As Kühn and Vives, *supra* note 7 at 110, note, “The effectiveness of [data] exchange for sustaining collusion is increased with ... the breakdown of data according to submarkets. [However, e]ven aggregate data may help to sustain collusion by reducing demand uncertainty, for example.”

²¹ As the OECD observes, “[A] direct exchange [of information] is more likely to be anticompetitive than an exchange through an intermediary.” OECD, *supra* note 9 at 296.

particularly reluctant to defect from a collusive agreement. Consequently, enhancing the accuracy of widely shared data can harm consumers by helping to enforce collusive agreements.²²

A third party might also report aggregated data in a manner that admits ready identification of the particular industry supplier that submitted each piece of data. In such a case, the third party is truly reporting disaggregated data which, for the reasons identified in Section III.C, can facilitate both the formulation and the enforcement of a collusive agreement.

E. The Information is Current

The common wisdom also holds that the sharing of current or recent data often can facilitate more effective collusion than can the sharing of dated, historic information.²³ This conclusion reflects two considerations. First, current data better reflect the likely impact of any proposed collusive agreement on industry suppliers than do historic data. Consequently, current data can facilitate agreement on the terms of a mutually acceptable collusive arrangement.²⁴ Second, in the presence of ongoing reporting of current data, industry suppliers recognize that defection from a collusive agreement is likely to be detected (and punished) rapidly.²⁵ Parties to a collusive agreement typically are less prone to defect from the agreement when the gains from doing so are likely to be short lived.

Although the sharing of historic data may be less prone to facilitate collusion than the sharing of current data, the former type of data sharing can facilitate collusion. It can do so, for example, when current capacity or output is determined primarily by historic investment decisions or the terms of historic contracts. This can be the case, for instance, when the amount of beef a firm can deliver to the market in a given year depends heavily on either the size of the cattle herd the firm purchased or on the contracts for cattle delivery the firm negotiated several years earlier. In such cases, knowledge of historic purchases and contracts can provide accurate information

²² As the OECD explains, “Information collected and verified by third parties such as auditing firms may strengthen collusion as this may be a mechanism for the colluding parties to verify the accuracy and correctness of the data.” *Id.* at 328.

²³ The following observations reflect this common wisdom. Federal Trade Commission and Department of Justice, *supra* note 11 at 15: “[T]he sharing of information on current operating and future business plans is more likely to raise concerns than the sharing of historical information.” OECD, *supra* note 7 at 296: “[S]haring of past data is generally deemed less problematic than sharing current data.”

²⁴ As Bennet and Collins, *supra* note 16 at 331, observe, “[H]istoric information is unlikely to provide an indication of what companies will do in the future, and hence unlikely to assist parties to arrive at a focal point.” Furthermore, as the OECD notes, “[T]he exchange of historic data is unlikely to provide indications as to intentions on future conduct of companies or a common understanding of the market.” OECD, *supra* note 9 at 397.

²⁵ Bennet and Collins note that “[H]istoric information is unlikely to be useful for firms to effectively monitor tacit agreements.” Bennet and Collins, *supra* note 16 at 331.

about current and future outputs.²⁶

F. Information Sharing is Widespread among Industry Suppliers

If the sharing of information is restricted to a few firms that collectively supply a relatively small portion of industry output, then any anticompetitive effects of the sharing may be limited. This is the case because even if the information sharing ensures successful coordination among a few small industry suppliers, non-colluding firms often can exert substantial, independent competitive pressures, thereby mitigating the anticompetitive effects of relatively limited collusion.²⁷

G. The Industry is Stable, with Limited Innovation

As explained in Section II.D, information sharing can benefit consumers by motivating enhanced industry investment in settings where future industry conditions are difficult to predict. This potential benefit of information sharing is less likely to be relevant in stable industries characterized by limited innovation, where future industry conditions can be predicted with substantial precision.

Information sharing also can be relatively likely to support collusive agreements in such stable industries. Shared information remains relevant for relatively long periods of time in such industries. Consequently, the shared information can help to formulate durable collusive agreements.

For both these reasons, the conventional wisdom holds that, *ceteris paribus*, information sharing is more likely to harm consumers in stable industries with limited innovation than in rapidly evolving industries where innovation drives substantial and often unpredictable change.

V. Industry Characteristics

To better understand the likely welfare effects of Agri Stats' activities, it is helpful to briefly review key elements of the industries in which Agri Stats operates – the chicken, turkey, beef, and pork industries.

²⁶ *Id.* More generally, “what qualifies as “historic” will depend upon the nature of the market and the competitive interaction within the sector. For example, in markets where contracts are awarded by tender processes, much will depend on the typical duration of contracts and the frequency of contract award processes. If tender processes are run only once every two years, then even information from two years ago may be useful [to facilitate collusion].”

²⁷ As the OECD observes, “If the companies involved in the information sharing do not cover a ... large portion of the relevant market, then competitors will be able to constrain their behaviour and stifle the potentially anticompetitive effects of their conduct.” OECD, *supra* note 9 at 395.

A. Concentrated Industries with Homogenous Products

In all four of these industries, the production process entails first raising animals, then slaughtering them and processing their meat. The processed meat is packaged and sold to food service companies, meat distributors, supermarkets, and fast-food restaurant chains.

In some cases, meat producers own the farms on which their animals are raised.²⁸ In other cases, the producers contract with independent farmers to raise the animals.²⁹ In such cases, the meat producers typically maintain substantial control over the number of animals that are birthed and how the animals are raised. The large scale at which most meat producers operate can make it expensive and challenging for new producers to enter the industry.³⁰

The final products sold by the producers in each of the four meat industries are fairly homogenous.³¹ Furthermore, each of these industries is relatively concentrated. In particular, the four largest producers in each industry account for the majority of industry output.³² Some large suppliers (e.g., Tyson and JBS USA) operate in more than one of these industries.

²⁸ See William McBride and Nigel Key, *U.S. Hog Production From 1992 to 2009: Technology, Restructuring, and Productivity Growth*, U.S. Department of Agriculture Economic Research Service Report #158 (2013); and James MacDonald, *Technology, Organization, and Financial Performance in U.S. Broiler Production*, EIB-126, U.S. Department of Agriculture, Economic Research Service (2014).

²⁹ This is typically the case in the beef industry. See *Ranchers Cattlemen Action Legal Fund United Stockgrowers of America v. Tyson Foods, Inc.*, Class Action Complaint, Case No. 1:19-cv-02726 at ¶2. The experience is more varied in the turkey industry. To illustrate, in this industry, Cargill owns and operates more than 700 farms whereas Farbest contracts with more than 200 independent farmers. See *Olean Wholesale Grocery Cooperative Inc. v. Agri Stats, Inc.*, Class Action Complaint, Case No. 1:19-cv-08318 at ¶97.

³⁰ “Construction of a large-scale slaughter facility would cost hundreds of millions of dollars and the additional planning, design, and permitting costs are substantial.” See *Nestle Purina Pet Care Company v. Agri Stats, Inc.*, Class Action Complaint, Case No. 1:21-cv-01324-BYP at ¶86.

³¹ For example, “pork loin from Tyson and Smithfield is virtually indistinguishable.” *In re Pork Antitrust Litigation*, Direct Purchaser Plaintiffs’ Third Amended and Consolidated Class Action Complaint, No. 18-cv-1776-JRT-HB at ¶89.

³² In the beef industry, the combined output of Tyson, JBS USA, Cargill, and National exceeds 80% of total industry output. *Ranchers Cattlemen Action Legal Fund United Stockgrowers of America v. Tyson Foods, Inc.*, Class Action Complaint, Case No. 1:19-cv-02726 at ¶3. In the broiler chicken industry, the four largest firms supply nearly 60% of industry output. See *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶103; see MacDonald, *supra* note 28. In the pork industry, Smithfield, JBS USA, and Tyson produce more than 50% of total industry output. *In re Pork Antitrust Litigation*, Direct Purchaser Plaintiffs’ Third Amended and Consolidated Class Action Complaint, No. 18-cv-1776-JRT-HB at ¶83. The four largest producers also supply more than half of all industry output in the turkey industry. *Olean Wholesale Grocery Cooperative Inc. v. Agri Stats, Inc.*, Class Action Complaint, Case No. 1:19-cv-08318 at ¶98.

B. Production Lags

To increase its production of meat, a producer generally must acquire and/or raise additional animals. The time between an animal's birth and its slaughter can be lengthy.³³ There can also be a considerable delay in acquiring additional animals for breeding.³⁴ Animal acquisition and breeding times generally are well known. Consequently, historic data on animal births and animal stocks often predict future output reasonably well.

C. Quantity Competition

Producers in these meat industries are best viewed as setting quantities rather than prices. Producers choose the number of animals to raise and when to slaughter them. These decisions directly affect the amount of meat that is supplied to the market. The price at which the meat can be sold generally is determined by the industry-wide demand for the meat and the aggregate supply delivered by all industry producers.³⁵

D. Correlated Changes in Costs and Demands

Because the meat producers sell homogenous products and employ similar technologies and operating procedures, they typically experience correlated changes in their costs and in the demands for their products. For example, higher animal feed prices generally increase the costs of all industry producers. Furthermore, changes in consumer preferences for meat products typically affect the demand that all industry suppliers face.

In summary, producers in each of the chicken, turkey, beef, and pork industries tend to produce homogeneous products. The producers typically operate at a large scale in relatively

³³ *In re Pork Antitrust Litigation*, Direct Purchaser Plaintiffs' Third Amended and Consolidated Class Action Complaint, No. 18-cv-1776-JRT-HB at ¶45: "A typical production cycle for a hog is roughly four years, which is a function of the biological cycle for hogs, which involves time needed for: (1) breeding an existing sow; (2) selecting and retaining piglets; and (3) breeding and rearing the selected piglets." Broiler chickens reach slaughter weight in 5 to 8 weeks after they are hatched. MacDonald, *supra* note 28.

³⁴ *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶123: "Because breeder flocks are created from a limited pool of so-called "grandparent" chickens from one of only three genetics companies (Aviagen, Hubbard, and Tyson's Cobb-Vantress), it takes substantial time – anywhere from six to eighteen months or more – to re-populate a breeder flock."

³⁵ Industry executives often discuss expanding or reducing production in response to changing market conditions, rather than adjusting prices. For example, Tyson's COO has observed "...we'll probably have to curtail production..." *Ranchers Cattlemen Action Legal Fund United Stockgrowers of America v. Tyson Foods, Inc.*, Class Action Complaint, Case No. 1:19-cv-02726 at ¶123. In addition, "Peco Foods' CEO publicly suggested that further production cuts were needed." *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶142.

concentrated industries. The producers often effectively choose the output they will produce several years in advance, and they tend to experience correlated changes in costs and demands.

E. Innovation

Producers in the chicken, turkey, beef, and pork industries have enhanced their productivity during Agri Stats' period of operation. They have done so in part by employing more efficient feed mixtures, expanding automated feed dispensing, improving production techniques,³⁶ and increasing the efficacy of artificial insemination processes.³⁷ The producers have also introduced new product varieties.³⁸

VI. Agri Stats' Activities

As noted at the outset, Agri Stats' stated mission is to "identify efficiency opportunities on a farm, flock, or plant level." Agri Stats "utilize[s] customized reports and graphs to identify for each customer exactly how every level of their operation performed in a given period, and how they compared to similar organizations in the industry."³⁹

A. Data Collection and Reporting

Agri Stats works with each of its clients (i.e., meat producers that report their data to Agri Stats) to help ensure they report standardized, comparable statistics on their production activities and financial performance.⁴⁰ Agri Stats collects the reported data and audits it for accuracy.⁴¹ Agri Stats then distributes a customized report to each supplier, typically on a monthly basis.⁴² On each of many dimensions, the customized report compares the client's performance with average

³⁶ The improved production techniques include all-in/all-out housing, under which animals of a similar age are kept together throughout each phase of the production process. This practice has been found to reduce the spread of disease. McBride and Key, *supra* note 28. MacDonald, *supra* note 28.

³⁷ See McBride and Key, *supra* note 28; James MacDonald and William McBride, *The Transformation of U.S. Livestock Agriculture: Scale, Efficiency, and Risks*, Economic Information Bulletin No. 43. Economic Research Service, U.S. Dept. of Agriculture (2009); and F. Bortolozzo, *et al.*, *New Artificial Insemination Technologies for Swine*, 50 *Reproduction in Domestic Animals*, 80 (2015).

³⁸ For example, chicken producers have introduced boneless chicken parts, breaded nuggets/tenders, and chicken sausages. Macdonald, *supra* note 28.

³⁹ Agri Stats, Inc., *Partnership and Services*, <https://www.agristats.com/partnership>.

⁴⁰ The Agri Stats' reports contain sections titled "Performance Summary, Feed Mill, Ingredient Purchasing, Nursery, Finishing, Market Haul and Profit." Bilbrey, *supra* note 5.

⁴¹ Some data are collected on a weekly basis. See *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶85.

⁴² "The information exchange involved current and forward-looking data. Agri Stats regularly prepared monthly reports that contained data that was less than six weeks old." *Olean Wholesale Grocery Cooperative Inc. v. Agri Stats, Inc.*, Class Action Complaint, Case No. 1:19-cv-08318 at ¶29.

performance of all industry suppliers and with the average performance of the top quartile of performers.⁴³

B. The Content of Reports

Agri Stats reports cover many aspects of industry operations. For example, in the broiler chicken industry, the reports include data on the number of breeder chickens each producer owns, the average age of the flock, chick mortality, and the average age of the chickens at the time of their slaughter. The monthly reports also include data on hatchery capacity, feed ingredients, feed costs, and compensation paid to plant workers and growers. In addition, the reports typically include data on output at individual plants, and sales and profit.⁴⁴ Consequently, the Agri Stats reports provide competitively sensitive information on output, costs, capacity, and profit.

Agri Stats reports have the potential to help a producer identify both activities on which its performance lags the performance of other industry producers and the reasons for the supplier's relatively poor performance. For example, if a pork producer's costs rise, an Agri Stats report can help the producer determine the extent to which its elevated costs reflect higher feed prices, delivery costs, vaccination costs, etc.⁴⁵

Agri Stats reports also have the potential to reduce suppliers' uncertainty about future industry prices and cost conditions. For example, information about the size and the average age of industry stocks might help a meat producer predict future industry output, and thus future industry prices. Alternatively, information about feed costs or grower compensation might help suppliers identify trends in industry costs.

C. The Number of Meat Producers Served

Agri Stats serves a large fraction of producers in each of the identified industries. The producers that subscribe to Agri Stats' services account for nearly 90% of industry output in the chicken industry.⁴⁶ Agri Stat subscribers account for more than 70%,⁴⁷ more than 80%,⁴⁸ and

⁴³ Billbrey, *supra* note 5.

⁴⁴ *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶84.

⁴⁵ If elevated costs are the result of increased feed costs, an Agri Stats report "contains 16 pages of detailed information to help drill down and analyze factors affecting feed cost." See <https://www.thepigsite.com/articles/benchmarking-and-tools-to-maximise-profit>.

⁴⁶ *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶79.

⁴⁷ *In re Cattle Antitrust Litigation*, No. 0:19-cv-01129 at 2.

⁴⁸ Billbrey, *supra* note 5 at ¶1.

approximately 80%⁴⁹ of output in the beef, pork, and turkey industries, respectively. Agri Stats only shares data with its subscribers, not with other industry suppliers or buyers of beef, pork, chicken, and turkey.⁵⁰

D. Confidentiality of Reported Data

Agri Stats' reports do not directly disclose the identity of the producer that reports a specific piece of data.⁵¹ Instead, Agri Stats assigns a numeric code to each producer and associates reported data with the code assigned to the reporting entity. In principle, each of Agri Stats' clients knows only its own numeric code. However, if an individual presently working at one meat producer previously worked either at Agri Stats or at a different meat producer, the individual might be able to link reported data to specific rivals.⁵²

There are at least three other ways in which an Agri Stats client might be able to infer the identity of a different client that reported a particular piece of data in an Agri Stats report. First, the reports often include very granular data about producer activities (e.g., the output of individual plants). This granularity could make the identity of the reporting entity apparent to knowledgeable industry actors.⁵³ Second, the Agri Stats reports provide some data that are disaggregated to small geographic regions. Such disaggregation might allow firms that are familiar with the locations of competitors' plants to infer the identity of the reporting entity.⁵⁴ Third, certain firms (e.g., Tyson) report publicly some of the same data they report to Agri Stats. By comparing the data reported publicly and privately, it might sometimes be possible to determine the identity of the reporting entity.⁵⁵

⁴⁹ *Olean Wholesale Grocery Cooperative Inc. v. Agri Stats, Inc.*, Class Action Complaint, Case No. 1:19-cv-08318 at ¶¶1-7.

⁵⁰ Agri Stats "will only grant access to Agri Stats reports to similarly situated companies that themselves share data with Agri Stats." *Id.* at ¶88. Thus, Agri Stats data is not shared publicly or with any buyers. Bilbrey, *supra* note 5 at ¶7.

⁵¹ *Id.* at ¶177.

⁵² Plaintiffs in antitrust cases report that Agri Stats seldom changes the codes it assigns to industry producers. *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶91.

⁵³ It is alleged that the data Agri Stats reports are "so detailed that any reasonably informed producer can easily discern the identity of its competitors' individual facilities." *In re Pork Antitrust Litigation*, Direct Purchaser Plaintiffs' Third Amended and Consolidated Class Action Complaint, No. 18-cv-1776-JRT-HB at ¶49.

⁵⁴ *Action Meat Distributors, Inc. v. Norman W. Fries, Inc.*, Complaint for Violations of Federal Antitrust Laws, Case No. 1:18-cv-03471 at ¶98.

⁵⁵ *Id.* at ¶93.

In summary, Agri Stats audits and reports timely, granular data on many activities conducted by a large proportion of industry producers. In principle, the customized reports that Agri Stats prepares for a client only allow the client to compare its performance with the corresponding average performance of many or all of Agri Stats' industry clients. In practice, a client might sometimes be able to infer the performance of specific industry rivals.

VII. Potential Effects of Agri Stats Activities on Consumer Welfare

Some elements of Agri Stats' activities may have served primarily to enhance consumer welfare whereas other elements have served primarily to reduce consumer welfare.

A. Activities that May Have Enhanced Consumer Welfare

At least three of Agri Stats' activities could have enhanced consumer welfare. First, the detailed, firm-specific data that Agri Stats collected, audited, processed, and disseminated may have facilitated accurate benchmarking. As noted above, such benchmarking could have alerted some industry suppliers to the potential to operate more efficiently, and thereby motivated expanded productivity-enhancing operations, including those noted in Section V.E. Consumers can benefit if increased efficiency leads to reduced production costs and associated expanded output and lower prices.

Second, the shared information may have reduced uncertainty about future industry conditions. The reduced uncertainty, in turn, may have reduced investment risk and thereby encouraged expanded investment in new facilities, animal stocks, and/or improved operations.

Third, if the information sharing did not support industry collusion, it could have enhanced consumer welfare through its impact on suppliers' output decisions.⁵⁶ As explained in Section II.C, industry suppliers will increase output when shared information indicates that demand is likely to be high. The associated reduction in the equilibrium price enhances consumer welfare. Furthermore, the substantial increase in consumer welfare when demand is high exceeds the corresponding welfare reduction that arises when the shared information induces output reductions when demand turns out to be relatively likely to be low.

B. Activities that May have Reduced Consumer Welfare

Agri Stats' activities also could have served to reduce consumer welfare. In particular, the detailed, firm-specific data that Agri Stats collected, processed, and disseminated may have facilitated both the formulation of a collusive agreement and monitoring compliance with the agreement. As explained in Section III.B, a common understanding of the benefits and costs that

⁵⁶ Similarly, if industry suppliers would have colluded successfully in the absence of information sharing, then the information sharing may have served primarily to enhance consumer welfare even in the presence of collusion.

a collusive agreement would entail for each industry supplier can facilitate agreement on the terms of a collusive arrangement. Furthermore, sharing of current, detailed data on the activities of industry suppliers can help to deter defections from the agreement.

Agri Stats' activities might also have reduced consumer welfare by increasing input prices for some suppliers, thereby encouraging them to reduce their output or increase their prices. To illustrate, suppose a producer of chicken feed knows that the price it charges one chicken supplier for feed will become widely known to other chicken suppliers (through the activities of an entity like Agri Stats). The feed producer may be particularly reluctant to reduce the price it charges for feed to one chicken supplier in this case, fearing that other chicken suppliers will then demand corresponding price reductions. In essence, although the feed producer might contemplate a "secret" price concession for a favored customer, it would not be amenable to a corresponding public price concession.⁵⁷ To the extent the data in the Agri Stats reports allowed each industry supplier to determine the input prices paid by other industry suppliers, the reports may have discouraged input price concessions, thereby harming consumers.

C. Assessment Informed by the Conventional Wisdom

As noted in the Introduction, the present analysis is not intended to determine whether, on balance, Agri Stats' activities enhanced or reduced consumer welfare. However, it might be noted that many elements of Agri Stats' activities reflect features of information sharing that the common wisdom suggests are relatively likely to harm consumers. In particular, relatively current, competitively sensitive information was widely shared among industry suppliers. The information was aggregated to some extent. However, it has been suggested that it was not difficult for knowledgeable individuals to associate individual data points with the particular industry supplier that reported the data.

⁵⁷ For related observations, see Thomas Cooper, *Most-Favored-Customer Pricing and Tacit Collusion*, 17 RAND Journal of Economics, 377 (1986).

VIII. Summary and Conclusions

We have explained why information sharing by industry suppliers can either enhance or reduce consumer welfare. We have also explained why the impact of information sharing on consumer welfare depends upon many factors, including industry conditions, the information shared, the manner in which it is shared, and when it is shared. We have reviewed the common wisdom about the elements of information sharing that render it relatively likely to reduce consumer welfare, and noted that Agri Stats' activities in the beef, pork, chicken, and turkey industries exhibited several of these elements. However, we have not attempted to assess whether, on balance, Agri stats' activities enhanced or reduced consumer welfare. A definitive assessment of this issue requires additional evidence about Agri Stats' activities and industry outcomes in each of these industries. The articles that follow in this special issue provide additional such evidence.