



SF Environment

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A Department of the City and County of San Francisco

San Francisco Antibiotic Use in Food Animals Ordinance Reporting Year 2018



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Executive Summary

In 2017, the San Francisco Board of Supervisors passed the Antibiotic Use in Food Animals Ordinance (Ordinance) to address one of the most pressing public health issues today – antibiotic resistance. According to the Centers for Disease Control (CDC), each year in the United States, at least 2.8 million people are impacted by an antibiotic-resistant infection, and more than 35,000 people die from antibiotic-resistant infections.¹ One way to reduce the incidence of antibiotic resistance is to reduce antibiotic overuse and improve the way antibiotics are used. To do so, we must first understand how much, when and why they are used.

Approximately two thirds of medically important antibiotics – that is, antibiotics important for the treatment of human diseases – sold in the U.S. are for use by the livestock industry, to raise animals for food. Yet there is no federal mandate for the livestock industry to track the use of medically important antibiotics. San Francisco’s Ordinance is the first local law of its kind in the United States to increase transparency about how antibiotics are used in the livestock industry.

Under the Ordinance, chain grocers operating in San Francisco (defined as grocers with 25 or more stores anywhere) must report to the San Francisco Department of the Environment (SF Environment) about the antibiotic use policies and practices of the producers of the raw meat and poultry they sell. The Ordinance also requires that SF Environment provide the public with information about the reported data. This is the first report under the Ordinance and provides information about meat and poultry sold in San Francisco in calendar year 2018.

Highlighted Findings

In 2018, ten grocery chains, representing more than 100 individual retail grocery stores in San Francisco, were required to report antibiotic use policies and practices for almost 350 reported meat and poultry products sold in San Francisco. Highlights of the reported data include:

- In general, grocers sought to comply with the Ordinance and asked producers in their supply chains for antibiotic use policies and data; however, relatively few producers provided full data.
- Many producers provided policy-level information about their use of antibiotics, but did not provide numeric data about antibiotic use.
- Poultry (chicken and turkey) producers provided the highest level of transparency regarding their use of antibiotics.
- The poultry industry (both chicken and turkey) provided far higher levels of transparency than the beef, lamb and pork sectors. Data from conventional² chicken producers showed significantly lower levels of antibiotic use than conventional turkey producers. This is in keeping with national

¹ Centers for Disease Control, 2020, available at <https://www.cdc.gov/drugresistance/biggest-threats.html> (accessed 2/27/20).

² i.e. not Organic or “No Antibiotics Ever”

trends, where average rates of antibiotic use in chicken are far lower than for beef, pork or turkey.

- Only one beef producer with two products, out of 115 reported products, provided antibiotic use data.
- No pork producers provided antibiotic use data.
- Only one grocer, Whole Foods, has a storewide policy restricting the use of antibiotics in any way. By contrast, in Great Britain, eight of ten national grocery chains have antibiotic use policies.³

Challenges and Opportunities

In this first year of reporting, SF Environment was able to collect antibiotic policy and use data for a variety of meat and poultry products sold locally. Considering there is no other law like this in the country, any data collection during this first year of implementation is a victory for transparency. It represents a first step on the path to full tracking of antibiotic use, which in turn can lead to improvements in antibiotic practices, decreases in unnecessary use, and ultimately, increased protection of human health. Transparency also opens the door to improved consumer choice that can send powerful market signals to the meat and poultry industry.

This first year of reporting identified two primary challenge areas. First, the Ordinance names grocers as those required to report antibiotic use policies and practices; grocers must obtain this information from producers of meat and poultry in their supply chains. In many cases, producers were either not willing or not able to provide this information. Although some producers claimed that the information was simply not yet tracked, others claimed the information was confidential. While this presents a major hurdle for grocers, they may look to the fast food industry for lessons. For many years, non-governmental organizations' advocacy campaigns have called on fast food restaurants to improve antibiotic stewardship among their raw meat and poultry suppliers. Led by Chipotle and Panera, numerous fast food chains have begun working with their suppliers to track and drive down their antibiotic use.⁴

Next, much of the data that was reported in this first year was incomplete and/or contained many errors. SF Environment is looking into other methods to collect data from grocers (and their producers) so as to streamline the process and ensure higher quality data. However, the Ordinance did not

³ The Alliance to Save Our Antibiotics, 2020, Supermarket antibiotics policies assessment 2019, available at <http://www.saveourantibiotics.org/media/1826/supermarket-antibiotics-policies-assessment-2020-report.pdf> (last accessed 2/28/20).

⁴ Brook, L. et al., 2019, Chain Reaction V: How Top Restaurants Rate on Reducing Antibiotic Use in Their Beef Supplies, available at https://article.images.consumerreports.org/prod/content/dam/CRO%20Images%202019/Health/10October/Chain_Reaction_V_Report_October_2019 (last accessed 2/26/20).

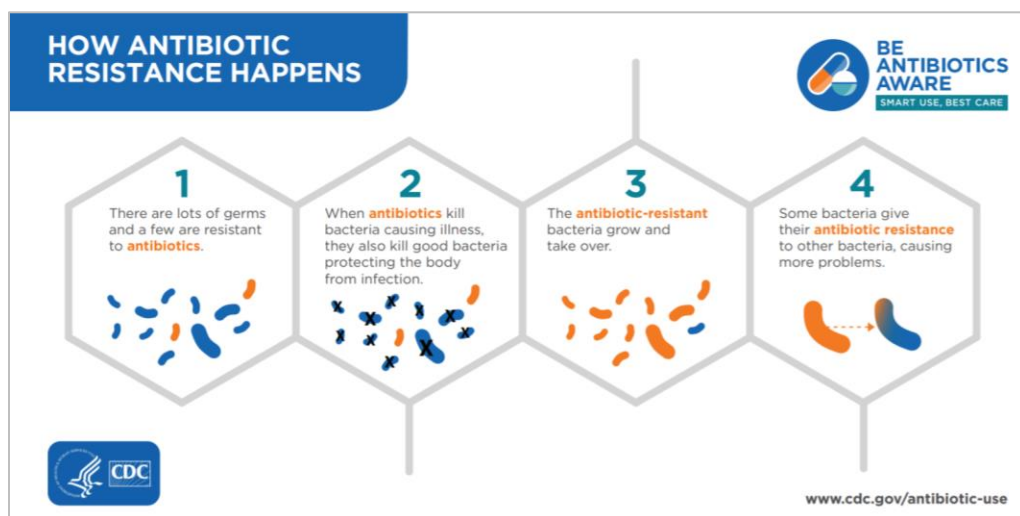
provide a source of funding for implementation, which has limited SF Environment's ability to develop a more user-friendly reporting system.

Ultimately, this first report reveals that antibiotic use in meat and poultry production is shrouded behind an industry-created veil, making it difficult for not only the public but grocers themselves to understand the practices behind the food they purchase. San Francisco's Ordinance is a first step toward bringing these practices to light; more jurisdictions passing similar transparency requirements could provide additional market pressure necessary to transform the livestock industry into one that is fully transparent about its use of antibiotics.

1. Introduction

On October 24, 2017, the City and County of San Francisco passed the landmark Antibiotic Use in Food Animals Ordinance (Ordinance) to address what the Centers for Disease Control (CDC) calls one of the most urgent public health threats: antibiotic resistance.⁵ Antibiotics are a critical part of our medical toolbox. We use them to treat bacterial infections, such as strep throat, pneumonia and meningitis. Unfortunately, antibiotic resistance – whereby bacteria are able to survive antibiotic treatment – is now a serious problem. Figure 1 below shows how antibiotic resistance occurs.

Figure 1. How antibiotic resistance happens⁶



Nearly two thirds of antibiotics considered important for human medicine are sold for use in animals raised for human consumption,⁷ and overuse or misuse in the livestock industry can result in these “medically important” antibiotics not working well for humans. When meat and poultry producers routinely use antibiotics, the bacteria that survive are more resilient and can proliferate and lead to infections that are less responsive to antibiotic treatment or aren’t treatable at all with antibiotics.

Resistant strains of bacteria can quickly spread from farms to the wider world via soil, land, air, water, people working in the livestock industry, and raw meat and poultry sold in stores. That is why, in 2017, the World Health Organization (WHO) recommended that “farmers and the food industry stop using

⁵ Centers for Disease Control (CDC): Antibiotics Resistance FAQs, available at <https://www.cdc.gov/antibiotic-use/community/about/antibiotic-resistance-faqs.html> (last accessed 2/26/20).

⁶ CDC: How Antibiotic Resistance Happens Infographic, available at https://www.cdc.gov/antibiotic-use/week/pdfs/How_Antibiotic_Resistance_Happens_508.pdf (last accessed 2/26/20).

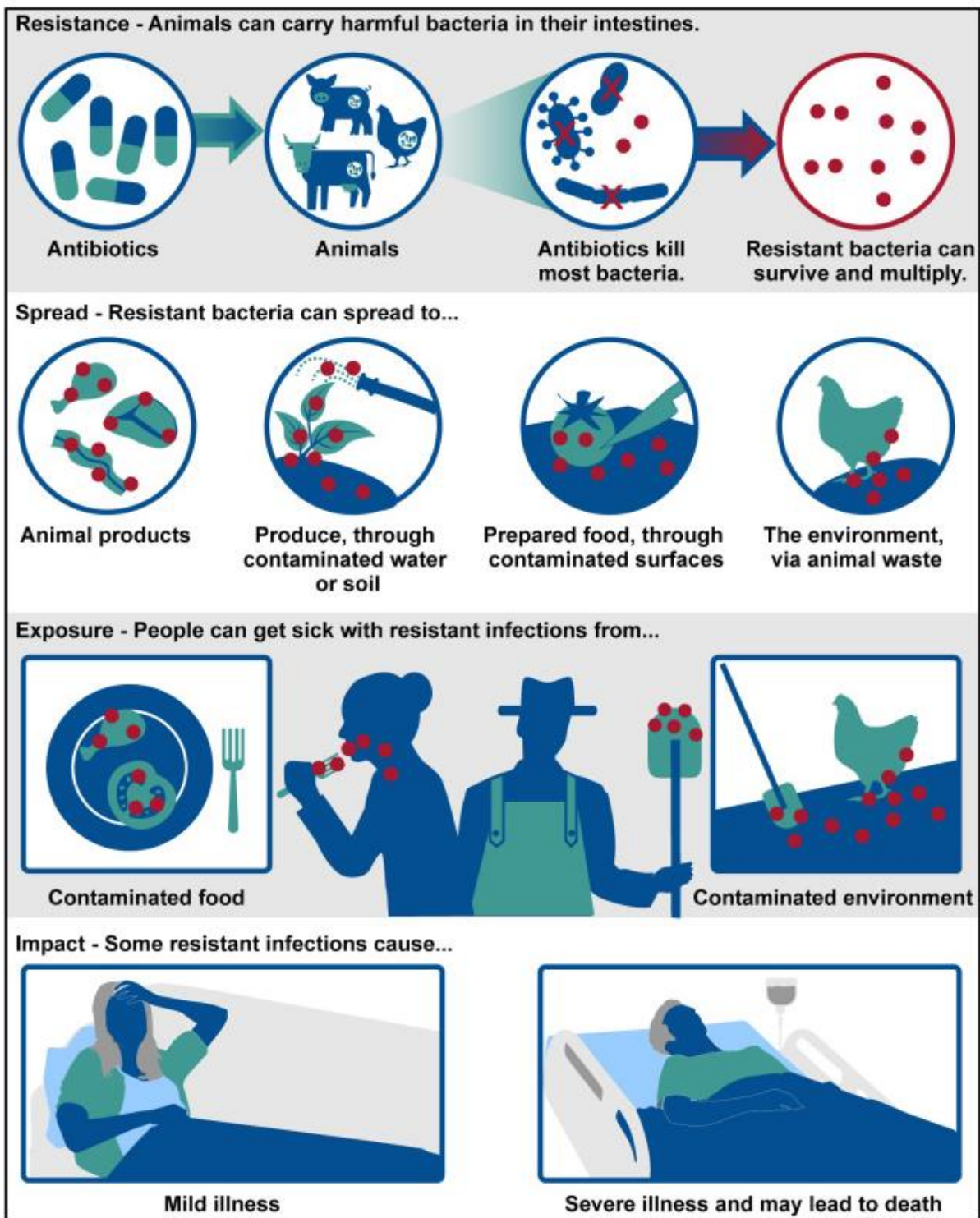
⁷ David Wallinga & Avi Kar, 2019, Very High Livestock Antibiotic Use Undercuts Effective Drugs, available at <https://www.nrdc.org/experts/avinash-kar/very-high-livestock-antibiotic-use-undercuts-effective-drugs> (last accessed 3/11/20).

antibiotics routinely to promote growth and prevent disease in healthy animals.”⁸ Figure 2 below from the CDC shows how overuse and misuse of antibiotics in both humans and animals can contribute to the proliferation of antibiotic-resistant bacteria. Any use of antibiotics, including human use, can contribute to the development and spread of antibiotic resistance.

However, there is little transparency about antibiotics used to produce meat and poultry; without transparency and disclosure, it is difficult to make improvements to industry practices. San Francisco’s Ordinance seeks to address that lack of transparency by requiring certain retailers of raw meat and poultry to report the antibiotic use policies and practices for the meat and poultry sold in their stores.

⁸ World Health Organization (WHO), 2017, Stop Using Antibiotics in Health Animals to Prevent the Spread of Antibiotic resistance, available at <https://www.who.int/news-room/detail/07-11-2017-stop-using-antibiotics-in-healthy-animals-to-prevent-the-spread-of-antibiotic-resistance> (last accessed 2/28/20).

Figure 2. How antibiotic resistance can develop and spread⁹



Source: Centers for Disease Control and Prevention. | GAO-17-192

⁹ CDC infographic as published in Government Accountability Office Report Number GAO-17-192, 2017. Available at <https://www.gao.gov/assets/690/683130.pdf> (last accessed 2/26/20).

1.1 Ordinance Requirements

Under the Ordinance, grocers in San Francisco with 25 or more stores anywhere are required to report two types of information about the meat and poultry products they sell. First, grocers must answer high-level policy questions about whether and in what situations antibiotics may be given to animals raised for each of their raw meat and poultry products. Second, grocers must provide numeric antibiotic use information.

Antibiotic Use Policy Questions

Following are the policy questions asked of grocers, who then in turn requested this information from raw meat and poultry producers in their supply chain.

1. Was this Product Group organic or raised without antibiotics¹⁰?
2. Was this Product Group raised without medically important antibiotics?
3. Did the policies for this Product Group require veterinarian oversight (e.g., a veterinary feed directive or other prescription) for all medically important antibiotics administered (including for injections and topical applications)?
4. Did the policies for this Product Group prohibit medically important antibiotics for growth promotion?
5. Did the policies for this Product Group prohibit medically important antibiotics for disease prevention¹¹?
6. Did the policies for this Product Group allow medically important antibiotics for disease control¹²?
7. Did the policies for this Product Group allow medically important antibiotics for disease treatment¹³?

Numeric Antibiotic Use Data

For any product that was not Organic or verified by the U.S. Department of Agriculture (USDA) as “No Antibiotics Ever”(NAE), grocers must provide the names of the producers of each product, the number of animals raised by that producer for that product line, and the number of kilograms of medically

¹⁰ “Product Group” is defined as the type of meat or poultry (i.e. beef, chicken, pork, turkey, lamb) and the brand name and sub-brand.

¹¹ Delivery of antibiotics without a diagnosis of disease.

¹² Delivery of antibiotics to an entire flock or herd of animals when one or more animals, but not all, are diagnosed with disease.

¹³ Delivery of antibiotics to an animal that is diagnosed with disease.

important antibiotics used to produce that product line. These numeric data are necessary to calculate the average amount of antibiotics used to produce that product line, which then can be used to compare quantities used by different producers and across animal species, to national data and to antibiotic use reported in other countries.

2. Reporting Compliance

Ten grocers were subject to the Ordinance, all of which reported some data. In general, grocers were able to obtain more information related to the policy questions listed in Section 1.1 above, but were less successful obtaining numeric data about antibiotic use for a given product. Figures in Section 2.1 present different views on the level to which policy questions were answered.

Figures in Section 2.2 present different views on the extent to which numeric data about antibiotic use was reported. For approximately one quarter of the products, grocers provided partial or incomplete data. Because grocers generally must obtain both policy information and volumes of antibiotics used from producers, we provide another view in Appendix A of reporting data by producer name.

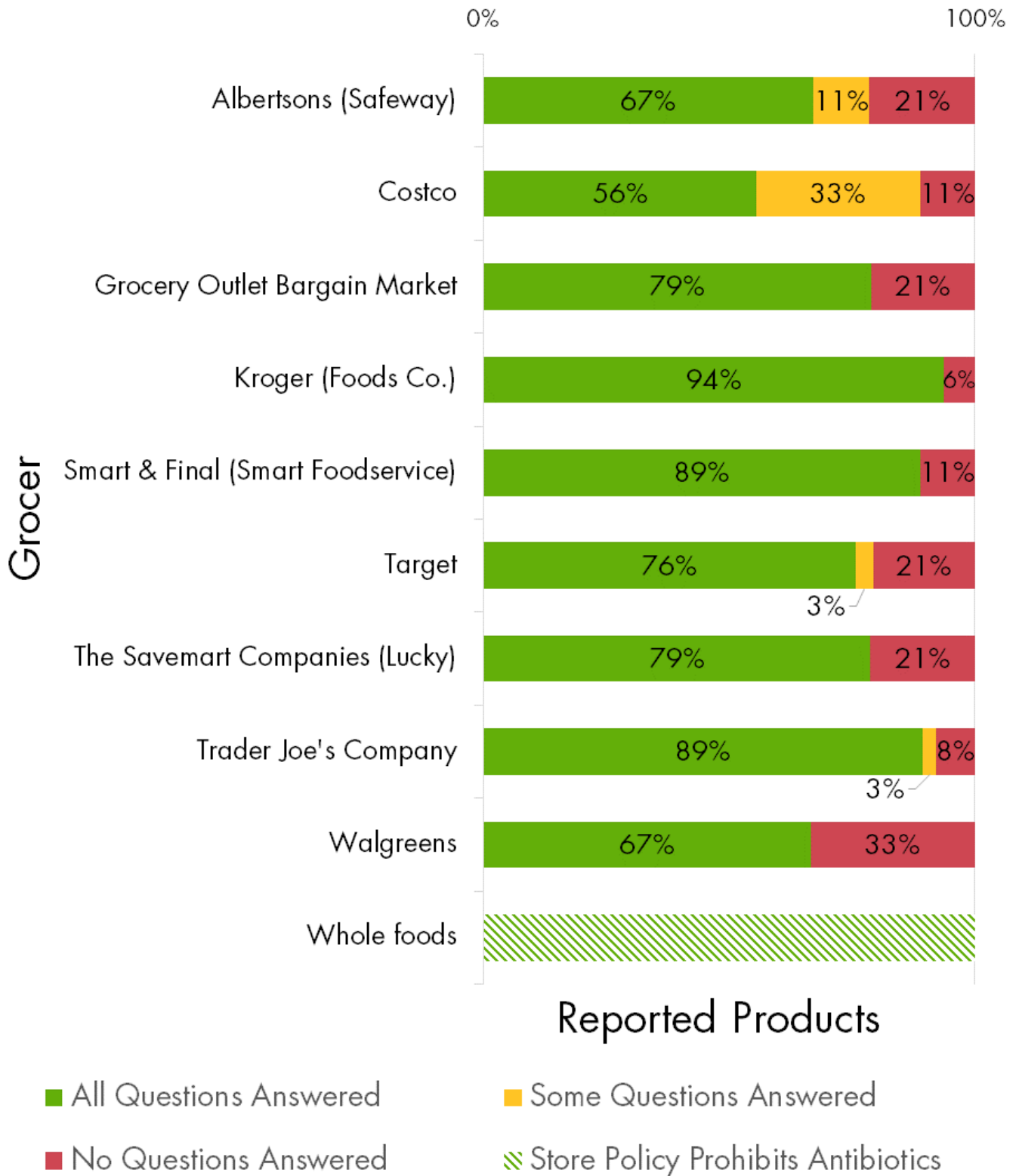
2.1 Compliance – Policy Questions

The bar chart in Figure 3 shows to what degree grocers responded to policy questions for individual products sold in 2018. Grocers' reported products were broken into three categories, "complete," "partial," and "none." Complete means that for each individual product, all policy questions were answered. Partial means that for an individual product, only some of the policy questions were answered. For example, Albertson's (which owns Safeway stores) answered all policy questions for 67% of meat and poultry products; for 11% of products, some of the policy questions were answered, and for the remaining 21% of products, none of the policy questions were answered.

Overall, most grocers were able to provide at least partial antibiotic use policy information for their products. Grocers with more products may have had more difficulty obtaining complete data from producers, simply because of more complex supply chains. That said, larger grocers may also have more leverage to require complete data from producers.

It is worth noting that Whole Foods has a storewide policy prohibiting antibiotic use to produce raw meat and poultry products it sells, and therefore does not have any antibiotic use data to submit. Instead, a grocer with a storewide policy prohibiting antibiotic use must only submit documentation of their policy. Our analysis of the data does not measure the quality of the grocers' or their producers' antibiotic use policies; it indicates only whether grocers provided policy data.

Figure 3. Percent of products for which grocers answered antibiotic policy questions



While grocers were required to submit information for products on their shelves, ultimately, they rely on producers for that information. While policy questions should be straight-forward for producers to answer – either they allow certain uses of antibiotics, or they do not – unfortunately, some producers refused to provide any information. Of the different livestock sectors, beef producers were least likely to provide answers to the high-level policy questions.

Figures 4 through 8 show the degree to which producers of brands of beef, chicken, turkey, pork, and lamb provided answers to antibiotic use policy questions. Figures 4 through 8 also provide the total number of products each producer was reported to have sold in San Francisco grocery stores.

Figure 4. BEEF – Percentage of policy questions answered by reported Brand and Sub-brand; numbers within bar charts are the number of products reported under that Brand and Sub-brand.



Figure 5. CHICKEN – Percentage of policy questions answered by reported Brand and Sub-brand; numbers within bar charts are the number of products reported under that Brand and Sub-brand.



Figure 6. TURKEY – Percentage of policy questions answered by reported Brand and Sub-brand; numbers within bar charts are the number of products reported under that Brand and Sub-brand.

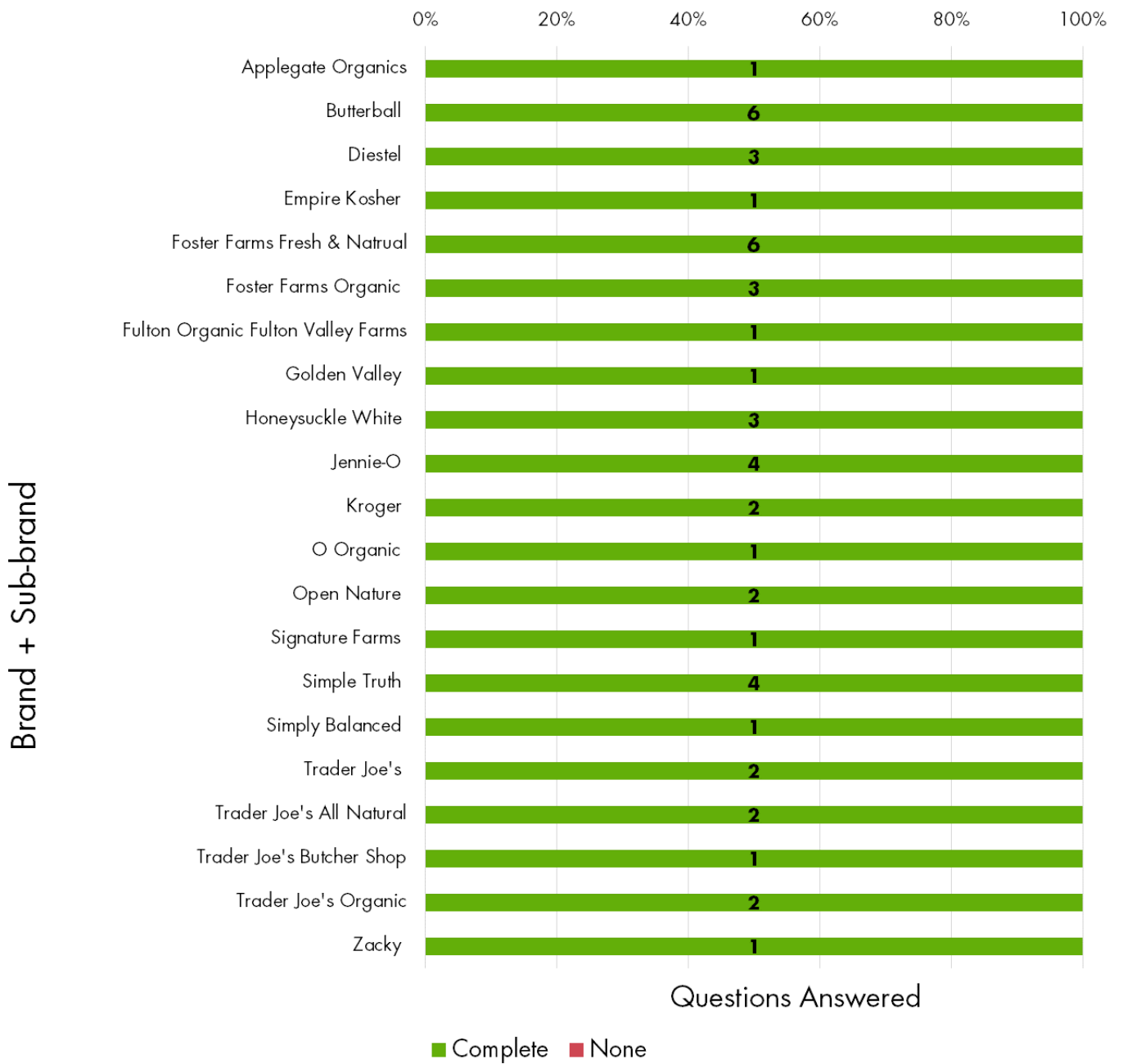


Figure 7. PORK - Percentage of policy questions answered by reported Brand and Sub-brand; numbers within bar charts are the number of products reported under that Brand and Sub-brand.

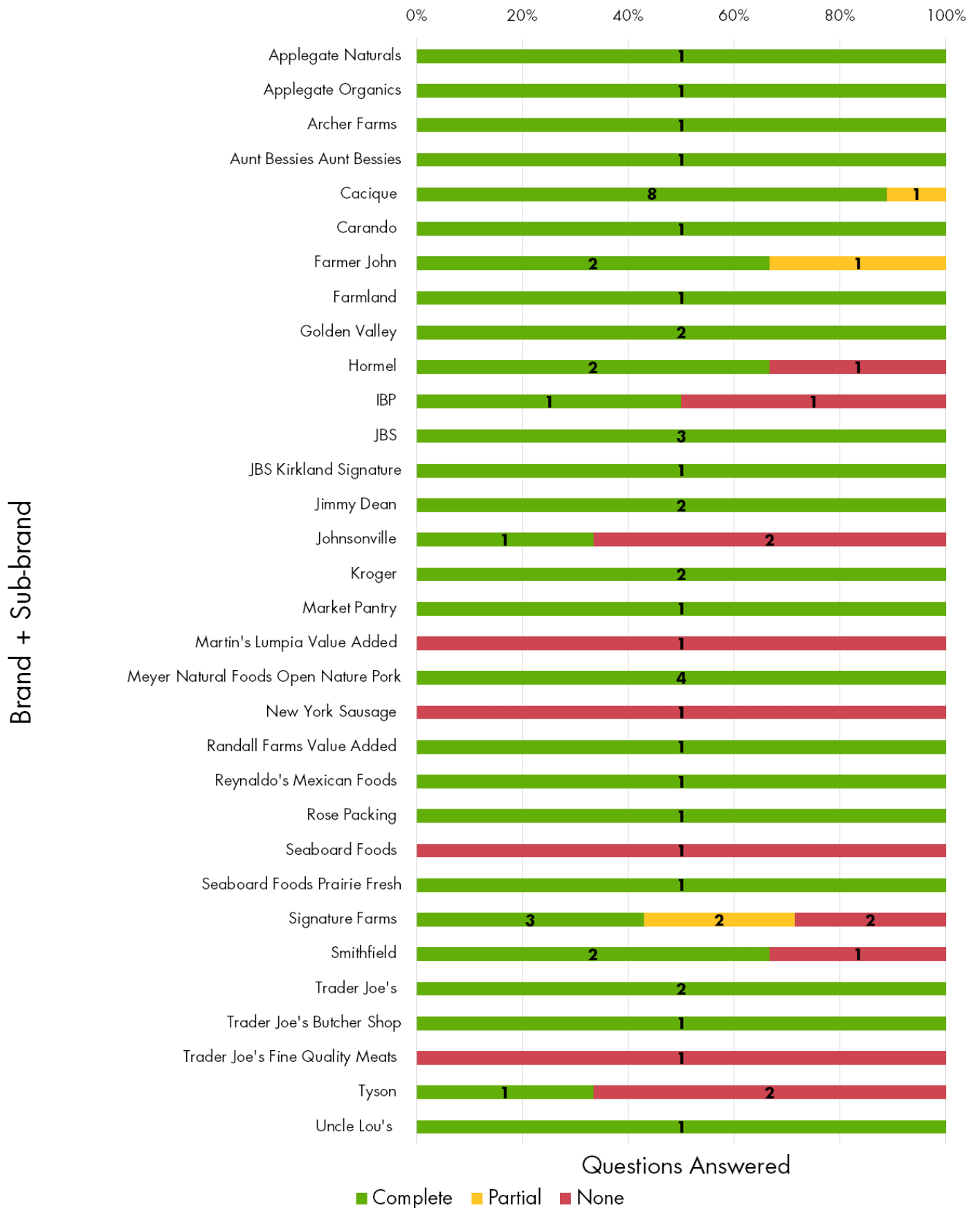
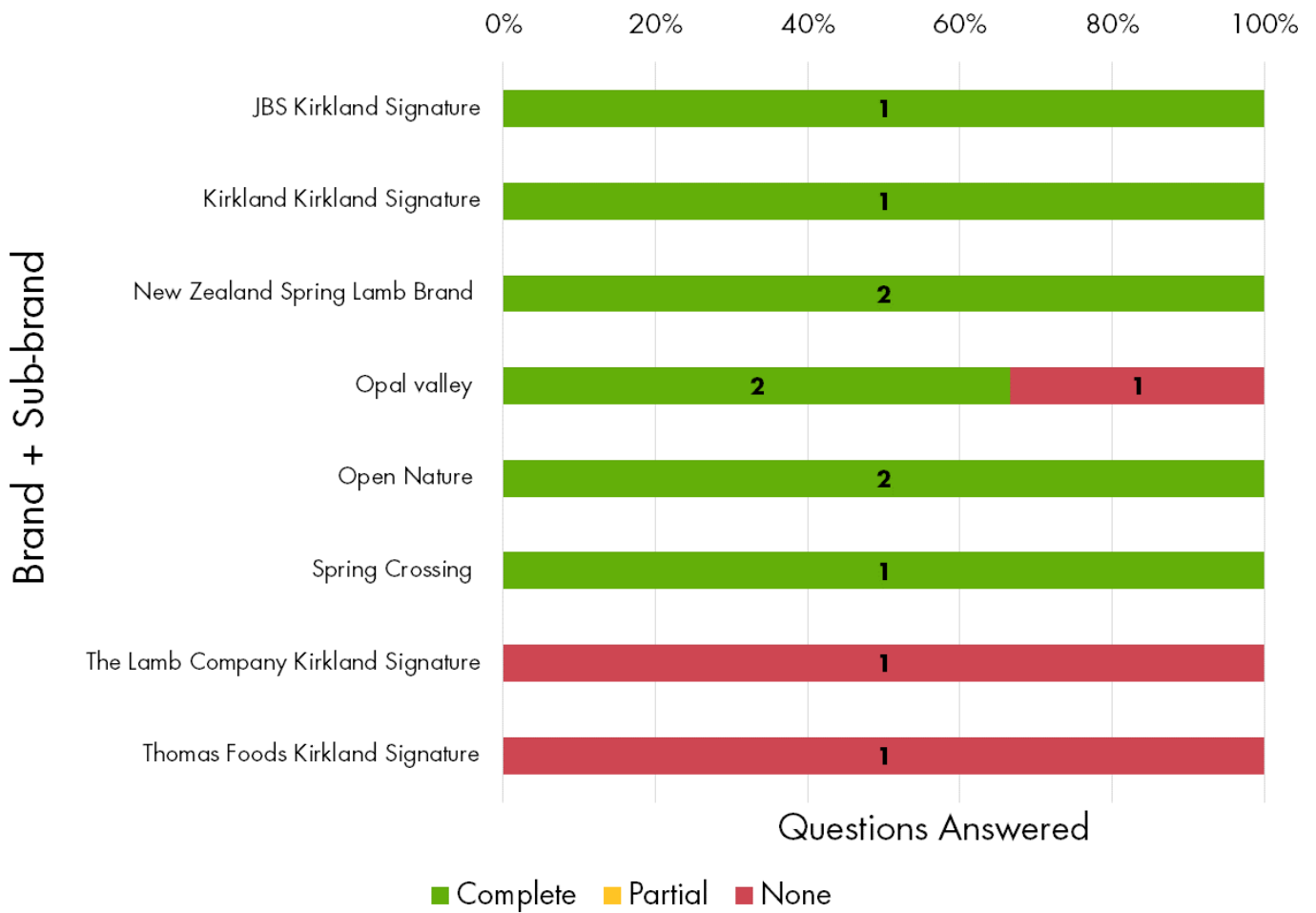
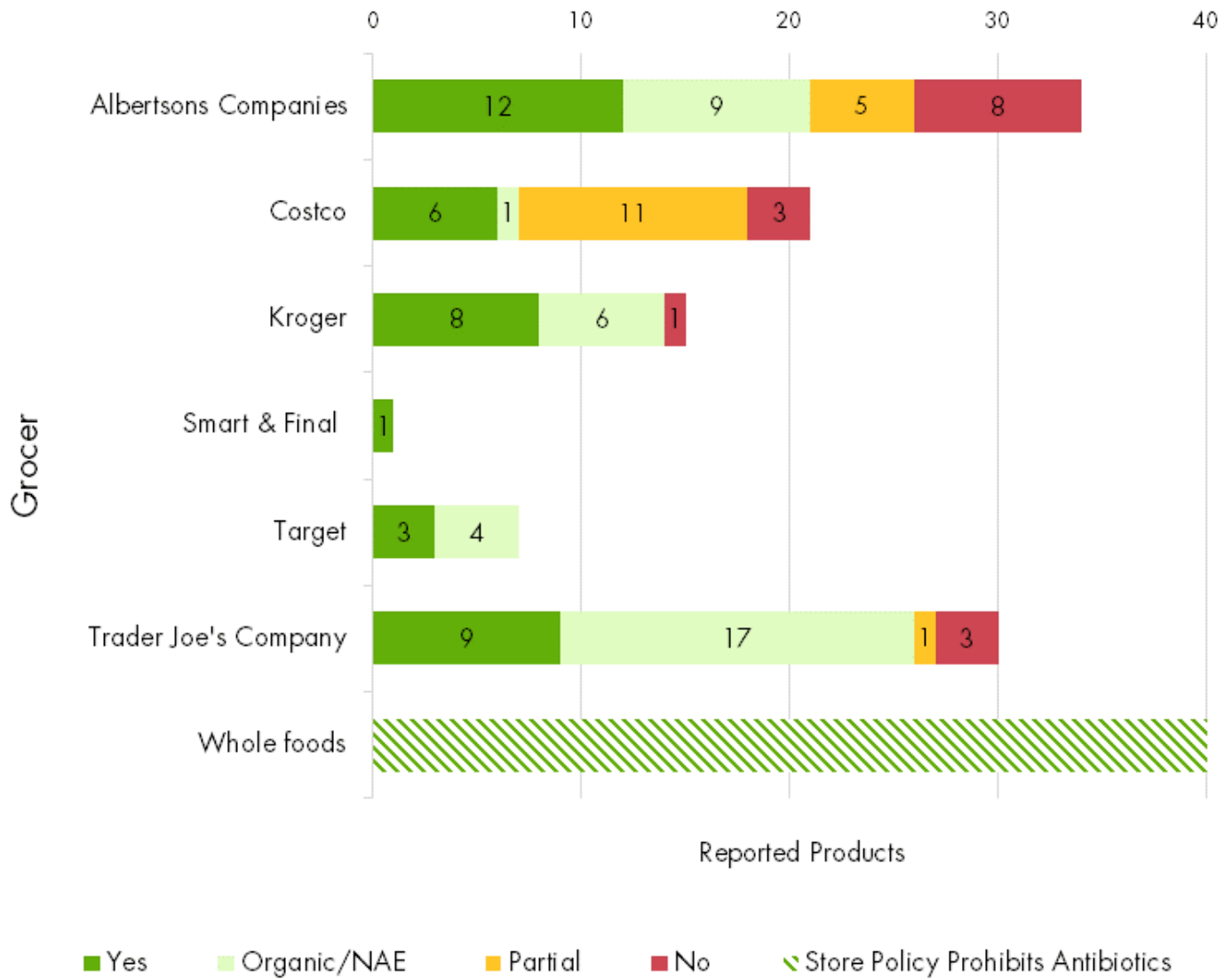


Figure 8. LAMB – Percentage of policy questions answered by reported Brand and Sub-brand; numbers within bar charts are the number of products reported under that Brand and Sub-brand.



Grocers may be better able to control the supply chain of a product that they label with their own branding. Figure 9 below presents the extent to which grocers were able to provide answers to policy questions for their store brand products.

Figure 9. Extent to which grocers answered policy questions for store brand products



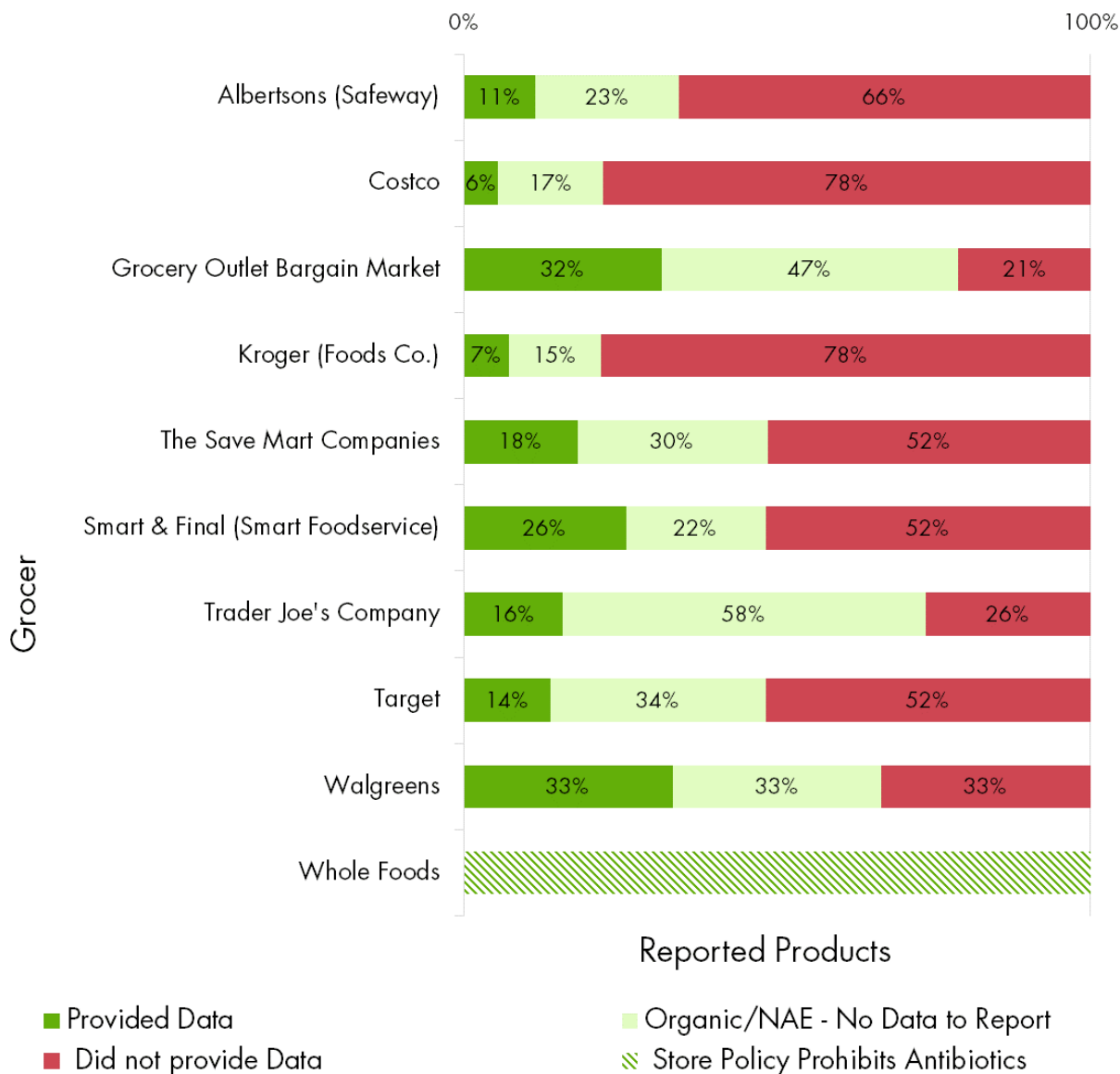
2.2 Compliance – Numeric Antibiotic Use Data

Grocers are required to provide additional information about their raw meat and poultry products, unless the product is Organic or NAE.¹⁴ These data requirements include the identity of the producer(s) that supplied the raw meat or poultry for that product, the number of kilograms of 12 classes of medically important antibiotics the producers used in the calendar year to raise animals slaughtered for that line of product, and the total number of animals raised for that line of product. These data allow for calculations that can help in comparing antibiotic use by species, producers, brands and grocery stores; it also allows for comparisons to national and international averages for rates of antibiotic use.

In this section, we present several views on the extent to which numeric data on antibiotic use was provided. First, Figure 10 presents the percentage of grocers' products for which numeric information was reported, by grocer. Overall, the extent to which grocers provided data on antibiotic use was much lower than their reporting on high-level antibiotic policy questions.

¹⁴ A list of brands reported by grocers to offer USDA Organic and NAE products is available in Appendix B.

Figure 10. Percentage of raw meat and poultry products for which Grocers provided kilograms of antibiotics used.



Figures 11 - 15 below show the extent to which producers provided numeric antibiotic use data for a product, as reported to us by grocers.¹⁵ Reporting was complete for approximately 10% of producers, partial for another 10%, and not reported for the rest. No pork or lamb producers provided kilograms of antibiotics used to produce their products.

¹⁵ Data may reflect: 1) grocers' failure to collect information or errors by grocers in submitting information, or 2) producers' failure to provide information, or 3) errors in submitting information.

Notable producers that demonstrated a high level of transparency include Foster Farms with 100% reporting for 33 products, and Perdue with 100% reporting for 10 products. Both of these are poultry companies. We received numeric data for a single beef producer, Van Drie Group, which produces veal.

Figure 11. BEEF - Percentage of producers' products for which antibiotic use data was provided

Producer	Number of Products reported	Percentage antibiotic use data provided
Van Drie Group	2	100%
Cargill	9	0%
JBS	7	0%
Tyson Foods	6	0%
National Beef	4	0%
Birchwood Foods	2	0%
Boise Valley	2	0%
CLW	2	0%
Colorado Premium	2	0%
Dale and Marsha Cannon	2	0%
Golden Valley	2	0%
Harris Feeding Company	2	0%
Jensen Meat	2	0%
American Custom Meats	1	0%
American Food Groups	1	0%
AMG	1	0%
Aurora	1	0%
Bill Baileys	1	0%
Bubba	1	0%
Caviness	1	0%
Connel	1	0%
Frontiere Natural Meats	1	0%
Harris	1	0%
Intermountain Beef	1	0%
Interstate	1	0%
Iowa Premium	1	0%
Jobbers	1	0%
Laura's	1	0%
Nebraska Beef	1	0%
Rocky Mountain Natural Meats	1	0%
Sam Kane	1	0%
NY Sausage	1	0%
Randall Farms	1	0%
Smithfield	1	0%
Snake River	1	0%
Western Reserve	1	0%
Wilson	1	0%

Figure 12. CHICKEN - Percentage of producers' products for which antibiotic use data was provided

Producer	Number of Products reported	Percentage antibiotic use data provided
Foster Farms	12	100%
Agrícola Súper SA	3	100%
Wayne Farms	3	100%
Amick Farms	2	100%
Perdue	2	100%
Peco Foods	6	50%
Sanderson Farms	4	50%
Devine	1	0%
J&B Group	2	0%
Jennie-O	1	0%
Koch Foods	2	0%
Maple Leaf Farm	1	0%
OK Foods	1	0%
Ozark Mountain Poultry	2	0%
Pilgrim's	3	0%
Suprema	1	0%
Tyson Foods	5	0%

Figure 13. TURKEY - Percentage of producers' products for which antibiotic use data was provided

Producer	Number of Products reported	Percentage antibiotic use data provided
Foster Farms	8	100%
Cargill	4	100%
Perdue	2	100%
Butterball	4	75%
Jennie-O	5	20%
Cooper Farms Processing	2	0%
Zacky	1	0%

Figure 14. PORK - Percentage of producers' products for which antibiotic use data was provided

Producer	Number of Products reported	Percentage antibiotic use data provided
Smithfield	8	0%
JBS	7	0%
Tyson Foods	7	0%
Seaboard	4	0%
Hormel Foods Corporation	3	0%
Aunt Bessies	1	0%
Fresh Sausage	1	0%
Johnsonville	1	0%
Maple Leaf	1	0%
Premium Iowa Pork	1	0%
Seaboard Triumph Foods	1	0%
Sioux Preme	1	0%
Triumph Foods	1	0%

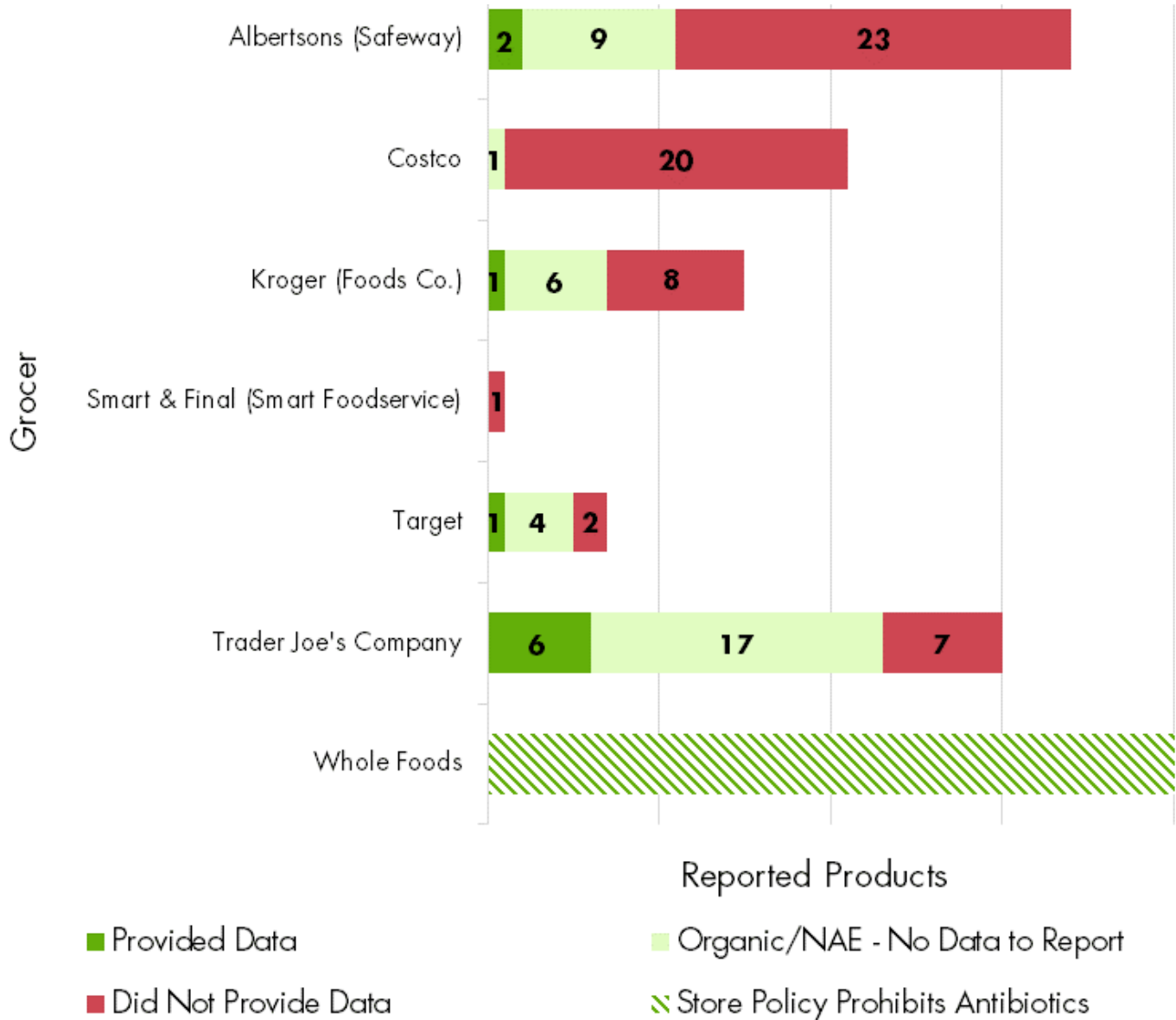
Figure 15. LAMB - Percentage of producers' products for which antibiotic use data was provided

Producer	Number of Products reported	Percentage antibiotic use data provided
Australian Lamb Company	3	0%
JBS	2	0%
Wammco	2	0%
ANZCO Foods	1	0%
Atkins Ranch	1	0%
Junee	1	0%
Progressive Meats	1	0%
Silver Fern Farms	1	0%
Thomas Foods International	1	0%

Many grocers offer products labeled under their own store brand. These products are typically purchased based on contractual specifications. Store brand contracts represent an opportunity for grocers to require greater disclosure of antibiotics used in the meat and poultry supply chain. Figure 16 below shows the number of store brand products reported by each grocer and whether required antibiotic use data was submitted. Notably, Trader Joe's, which commonly brands products on its shelves under its own label, was able to provide data for almost half of the store brand products it sells.

Clearly, all grocers have much more work to do, as do the producers in their supply chains.

Figure 16. Number of raw meat and poultry store brands for which grocers provided kilograms of antibiotics used



3. Differences in Sector Reporting

There were clear differences in the level of reporting provided for the five major species sectors of the livestock industry (e.g. beef, chicken, turkey, pork and lamb). Poultry was almost exclusively the only sector of the market to provide kilograms of antibiotics used to produce their products. Interviews with industry experts and grocers suggested the poultry sector is ahead of other sectors for several reasons. First, a broiler chicken’s life is relatively short – 45 to 60 days to slaughter – and therefore more likely to spend its entire life under the care of one producer. This vertical integration simplifies collection and tracking of antibiotic use.

In addition, as noted previously, fast-food restaurants faced public scrutiny and advocacy campaigns regarding overuse of antibiotics in chicken production several years ago. Under pressure from their customers, chicken producers have made improvements in tracking and reduced their use of medically important antibiotics.

By contrast, a cow bred for consumption lives for about 36 months and is commonly transferred to a number of different locations before slaughter. Currently, locations along the supply chain may not consistently collect data on antibiotics used, much less to transfer that data when transferring cattle from location to location. **One grocer described the beef supply chain as the “wild wild west” regarding the movement of animals and lack of antibiotics tracking.** Recognizing that grocers would not likely be able to obtain 2018 antibiotic use data from beef and possibly pork and lamb producers that aren’t vertically integrated, SF Environment issued a one-year waiver of full life span reporting and allowed reporting of antibiotic use at the last location the animal resided, sometimes referred to as “feedlot forward” reporting.

Despite this regulatory relief, SF Environment received relatively little antibiotic quantity data for beef, pork or lamb products. **Only one producer provided information on beef products.¹⁶ No pork or lamb producers provided data.**

4. Comparing Antibiotic Use to National Average

San Francisco’s Ordinance requires specific data – the number of animals raised for a product line and kilograms of medically important antibiotics used to produce that number of animals. This data enables a calculation of the average antibiotic use per kilogram of livestock.¹⁷ This calculation then can be compared to a national average calculated from antibiotic sales data reported by the U.S. Food & Drug Administration.¹⁸

Because very little data was reported for kilograms of antibiotics used, it is difficult to compare antibiotic use across species for 2018. However, where possible, we present reported antibiotic use

¹⁶ Van Drie Group’s product is veal, which is meat from calves. Because of the short life span before slaughter, this product may come from a vertically integrated supply chain.

¹⁷ Calculation is modeled after the European Surveillance of Veterinary Antimicrobial Consumption (ESVAC). More information on ESVAC and species by species calculations is available at <https://www.ema.europa.eu/en/veterinary-regulatory/overview/antimicrobial-resistance/european-surveillance-veterinary-antimicrobial-consumption-esvac> (last accessed 2/28/20).

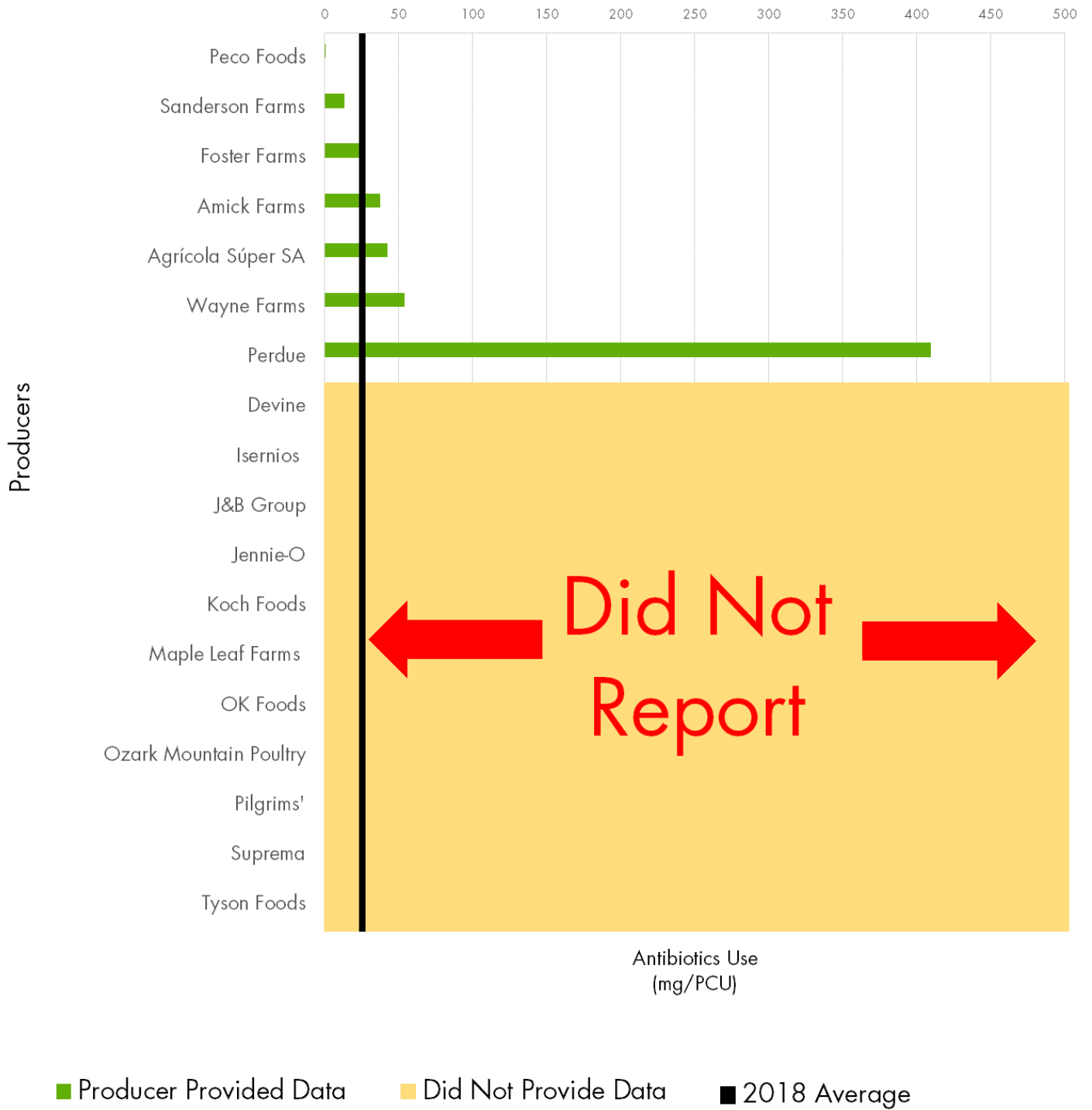
¹⁸ Natural Resources Defense Council’s December 2019 report, “Intensity of Antibiotic Consumption In U.S. Livestock: 2019 Update,” provides national averages of antibiotic use per kilogram of livestock. The report and methods are available at https://www.nrdc.org/sites/default/files/media-uploads/attachment_to_blog_v2_0.pdf (last accessed 2/28/20).

compared to the calculated national average. Figures 17 – 21 provide this comparison for beef, chicken, turkey, pork and lamb.

Figure 17. BEEF - Producer antibiotic use as compared to 2018 national average



Figure 18. CHICKEN – Producer antibiotic use as compared to 2018 national average¹⁹



¹⁹ Although Perdue has been an industry leader in driving down its use of antibiotics in chicken production, data submitted by Trader Joe's appears to be an order of magnitude higher than the national average. SF Environment contacted all grocers to check outliers such as these for potential reporting errors.

Figure 19. TURKEY – Producer antibiotic use as compared to 2018 national average

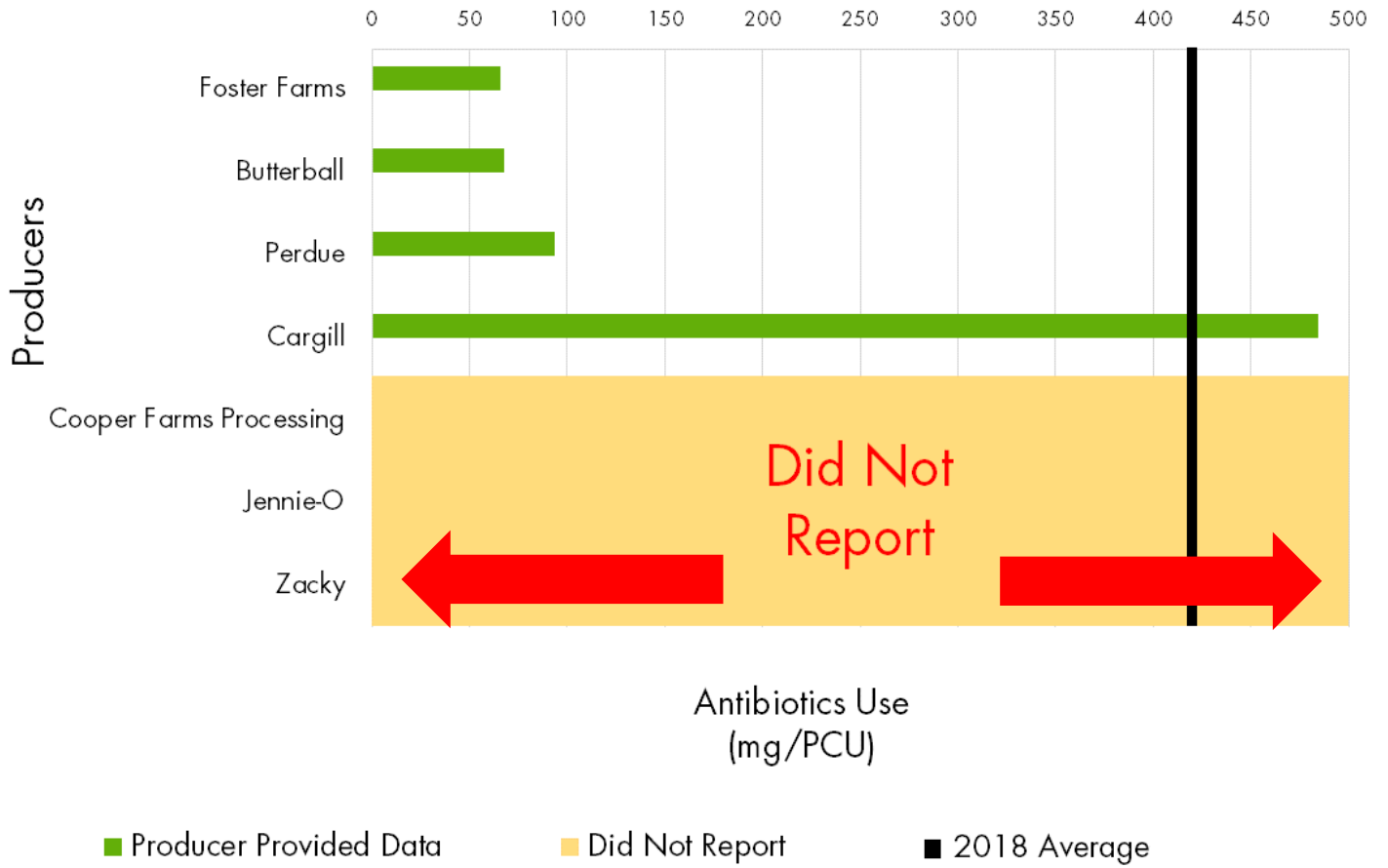


Figure 20. PORK – Producer antibiotic use as compared to 2018 national average.

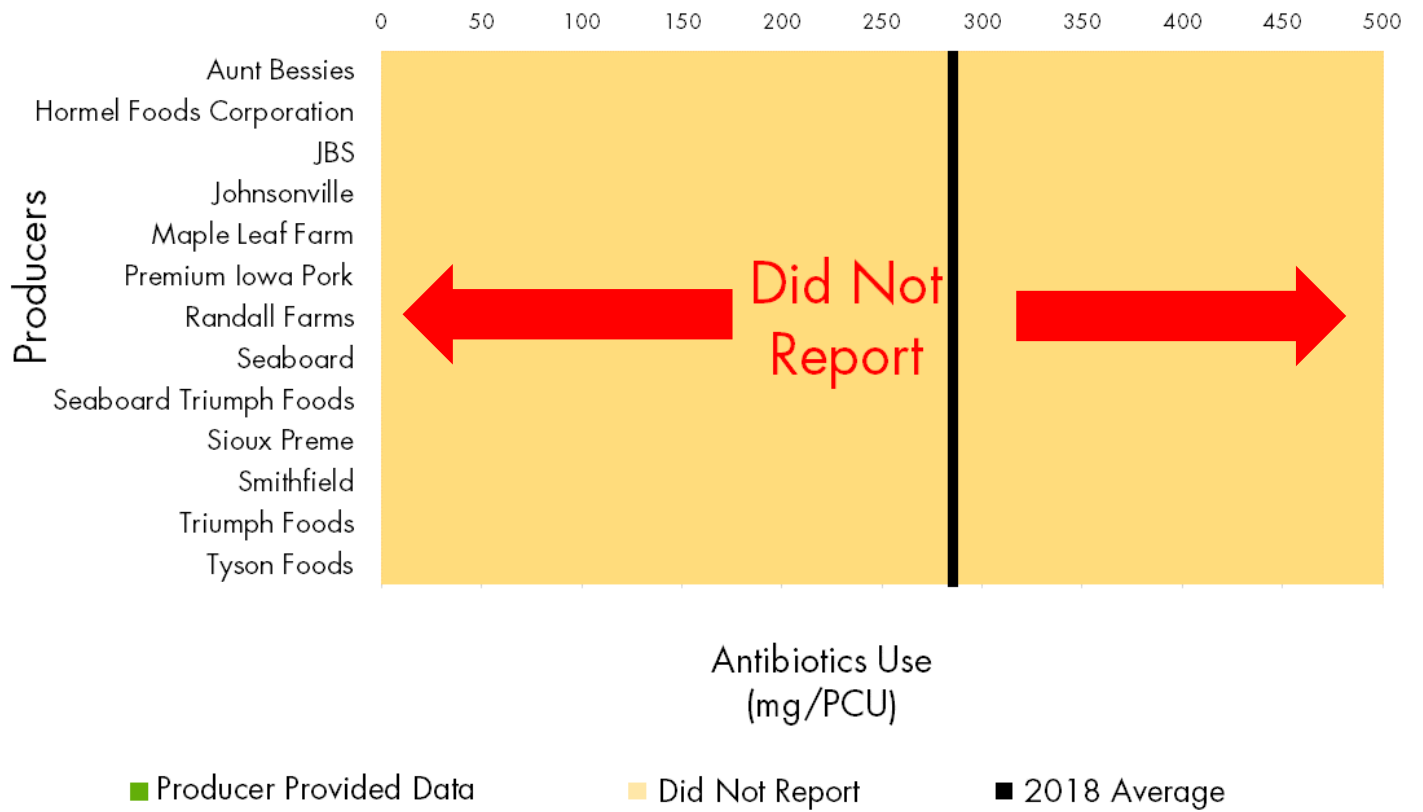
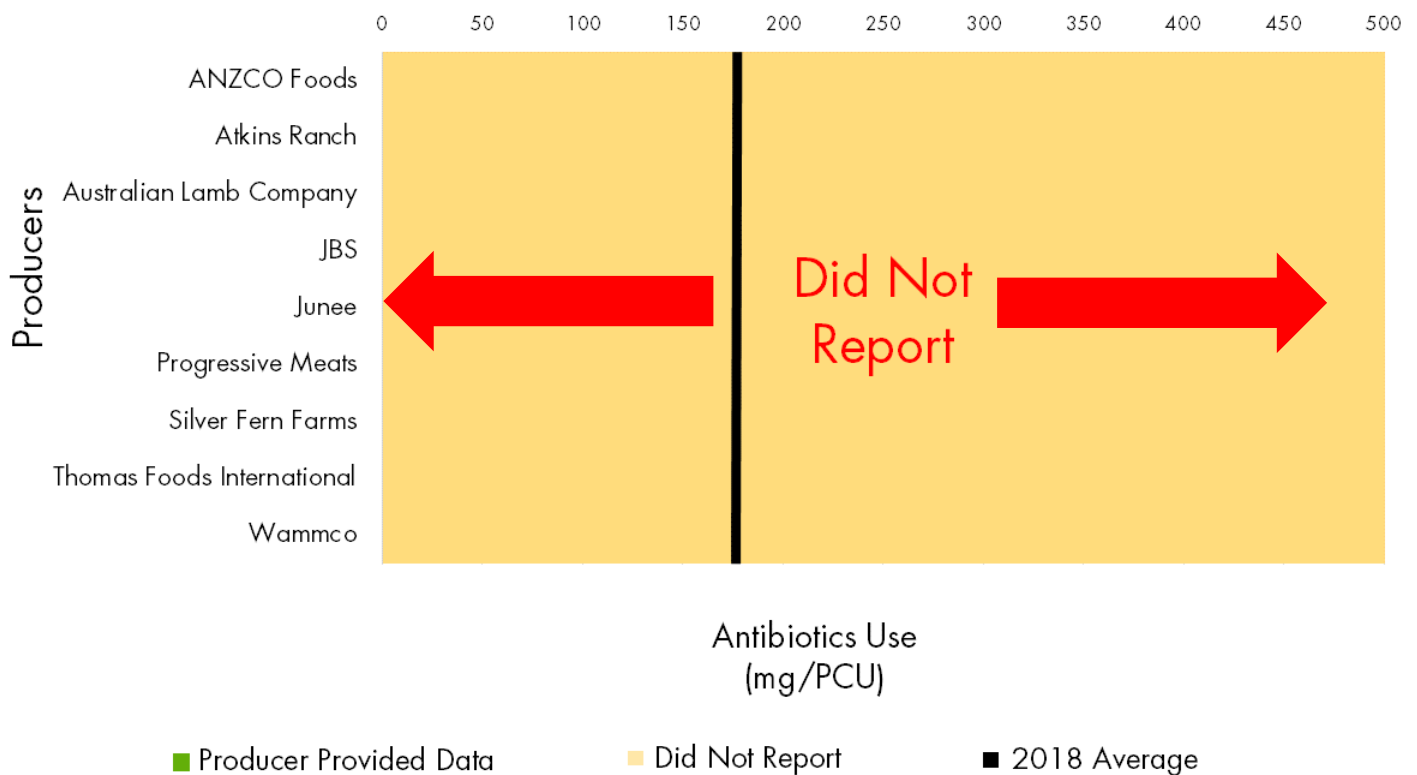


Figure 21. LAMB – Producer antibiotic use as compared to 2018 national average²⁰



5. Reporting Challenges

As with any new program, there were numerous challenges to obtaining complete antibiotic policies and use data. In the absence of state or federal mandates to collect this data, many producers have indicated that they are not tracking this information. Nonetheless, at a minimum, producers should have been able to answer policy questions about whether antibiotics may be used under different scenarios, particularly if they are vertically integrated or for “feedlot forward” reporting, which only seeks

²⁰ FDA does not provide information for sales of antibiotics for sheep. We use a national average for all species in Figure 21. National average from Natural Resources Defense Council’s December 2019 report, “Intensity of Antibiotic Consumption in U.S. Livestock: 2019 Update,” provides national averages of antibiotic use per kilogram of livestock. The report and methods are available at https://www.nrdc.org/sites/default/files/media-uploads/attachment_to_blog_v2_0.pdf (last accessed 2/28/20).

antibiotic use information on the last step in the supply chain. Despite the waiver, there were a substantial number of blank responses for policy questions for beef.

Some producers claimed antibiotic use information is confidential and refused to provide data to grocers. **Interviews with the North American Meat Institute (NAMI), a national trade association of meat and poultry producers, revealed that the association's representatives would discourage members from providing information to grocers.** Although the Ordinance states that grocers and producers are jointly and severally liable, some producers provided grocers with letters stating there was no legal requirement for them to provide information.

Beyond this lack of data, inexperience with the reporting form and system meant that much of the data SF Environment received had errors. There were percentages in the wrong columns or sums that did not add up. In addition to blank responses, many producers answered policy questions in a way that contradicted federal law. For example, U.S.-based producers are no longer allowed to use antibiotics for growth promotion, though some producers answered affirmatively that they use them for this purpose. Due to the poor quality of submitted data, it is unclear whether contradictory policies accurately reflect producer policies and practices or were merely errors. SF Environment worked closely with grocers to correct apparent errors, but as grocers were primarily consolidating information received from producers, there were limits to correcting the data.

In addition, SF Environment recognizes the limitations of the current reporting form and system. Facing funding constraints, SF Environment developed a macro-enabled Excel form for data collection. Grocers must send out the form to producers, who then must learn how to fill it in, and then submit back to grocers. Grocers were meant to consolidate the data into one report, but few did so. Instead, SF Environment received numerous forms, letters and other types of information that it then consolidated, and sometimes interpreted, on behalf of the grocer.

Ideally, SF Environment would develop a web-based reporting system whereby grocers could send a web form to all their producers to use for reporting, and the tool would then flag potential errors for the producer and consolidate the data for the grocer. This reporting system would also potentially allow a producer to provide data to any number of grocers to whom it sells product. Unfortunately, the Ordinance did not provide implementation funding, limiting our capacity to streamline reporting. SF Environment continues to seek, and welcomes, other sources of funding and support.

6. Conclusions & Next Steps

Despite the growing need to address antibiotic resistance, certain segments of the grocery, meat and poultry industries do not appear to have robust means for, or an interest in, tracking their use of antibiotics. **The antibiotic policies and use data collected by grocers from producers indicates there is generally a lack of either willingness or ability to disclose how much and under what circumstances medically important antibiotics are used to produce raw meat and poultry.**

That said, in general, poultry producers provided far more transparency into their policies governing use of antibiotics, as well as the quantities of antibiotics used to produce the products sold by San Francisco grocers. Turkey producers used higher quantities of antibiotics per kilogram of livestock raised than chicken. In significant contrast, very little data was provided about beef, lamb and pork producers' use of medically important antibiotics, and there is considerable room for improvement. We note that national averages for rates of antibiotic use for beef production are several times higher than for chicken.

In future years, San Francisco grocers will need to redouble their efforts to obtain information for all meat and poultry they sell in order to fully comply with the Ordinance. Experience from grocers in the Great Britain demonstrates what is possible: in response to requests similar to those required under the Ordinance, eight of ten British grocers rapidly developed antibiotic use policies.²¹ Likewise, we hope chain grocers with a presence in San Francisco will push their raw meat and poultry suppliers to begin the important work of tracking their antibiotic use, creating policies that restrict that use to the treatment of diseased animals, and ultimately reduce overall use of medically important antibiotics.

If more jurisdictions pass ordinances similar to San Francisco's, growing public awareness and demand for transparency could drive grocers and meat and poultry producers to better track antibiotic use, and ultimately toward improvements in antibiotic use practices. In addition, multiple jurisdictions with similar reporting requirements could combine funding sources to create a multi-jurisdictional reporting platform that would ease grocers' reporting burden and improve consistency in data collected.

While far from a complete picture of antibiotic use practices, this first annual report is a strong foundation upon which we and other jurisdictions can build. We look forward to working with grocers and producers in the coming reporting cycles to improve data quality and quantity, provide important information for consumer choice, and ultimately keep medically important antibiotics working.

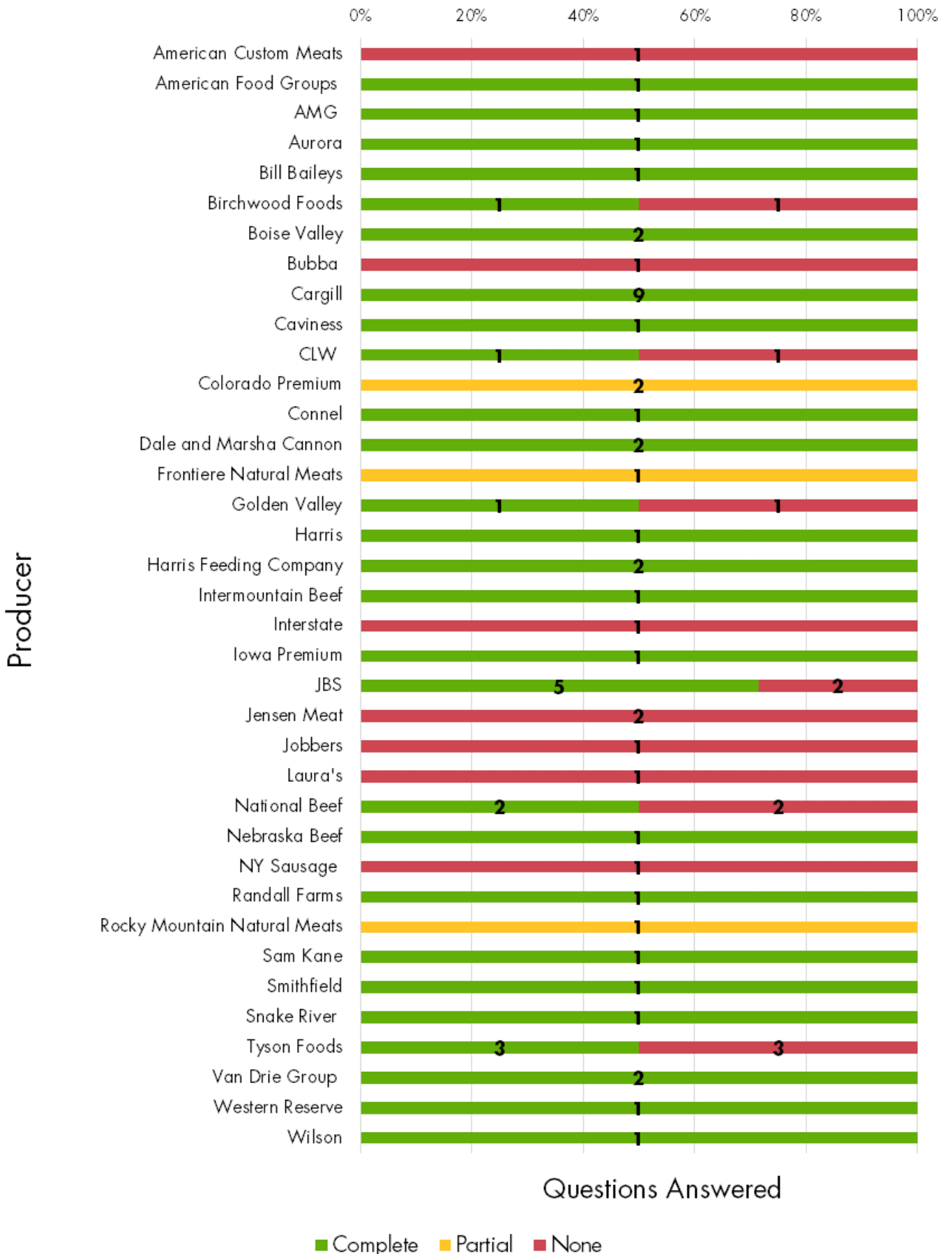
²¹ See Appendix 3 of Save Our Antibiotics' "Supermarket Antibiotics Policies 2020 Assessment Report. Available at <http://www.saveourantibiotics.org/media/1826/supermarket-antibiotics-policies-assessment-2020-report.pdf> (accessed 2/28/20).

Consumers have the right to know how much, when and why antibiotics are used so they may make informed choices. **The current lack of transparency takes away consumers' right to express their values through their purchasing decisions.**

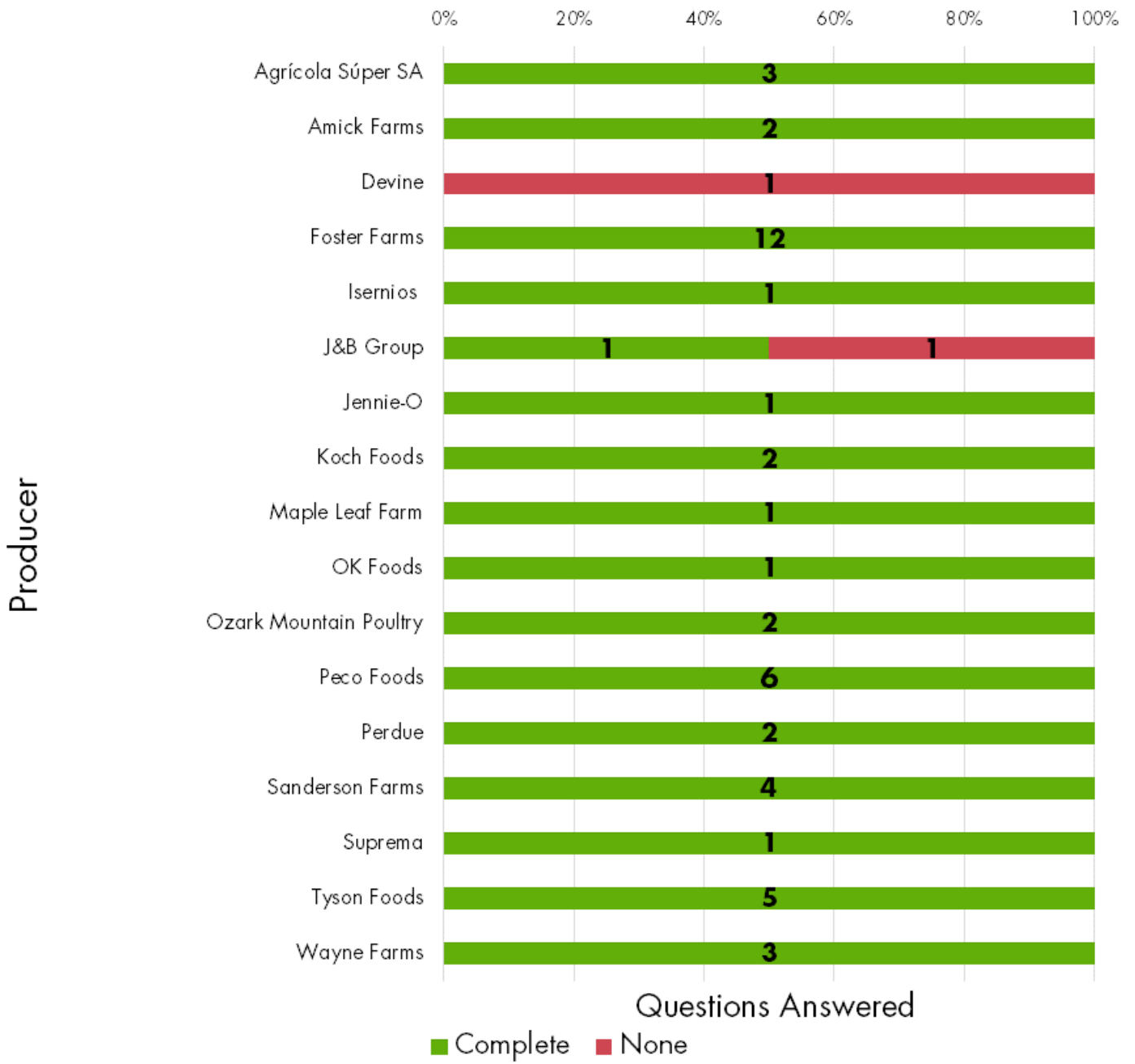
Appendix A

Percent of Products for which we received answers to policy questions, segmented by beef, chicken, lamb, pork and turkey. Numbers embedded in charts represent the actual number of products reported. For example, beef by Birchwood Foods was reported as a producer twice by grocers, and in one instance all policy questions were answered, and in the other instance, no policy questions were answered.

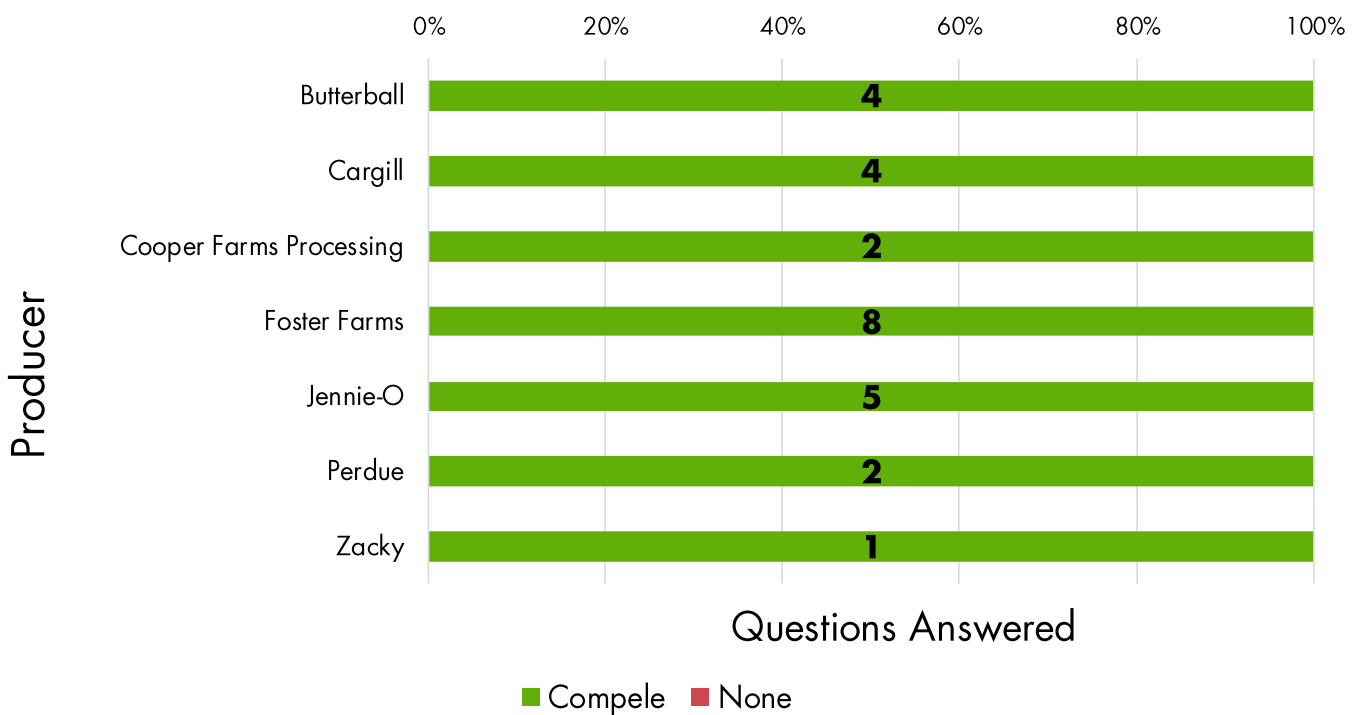
Beef - Percent of products for which Producers answered policy questions



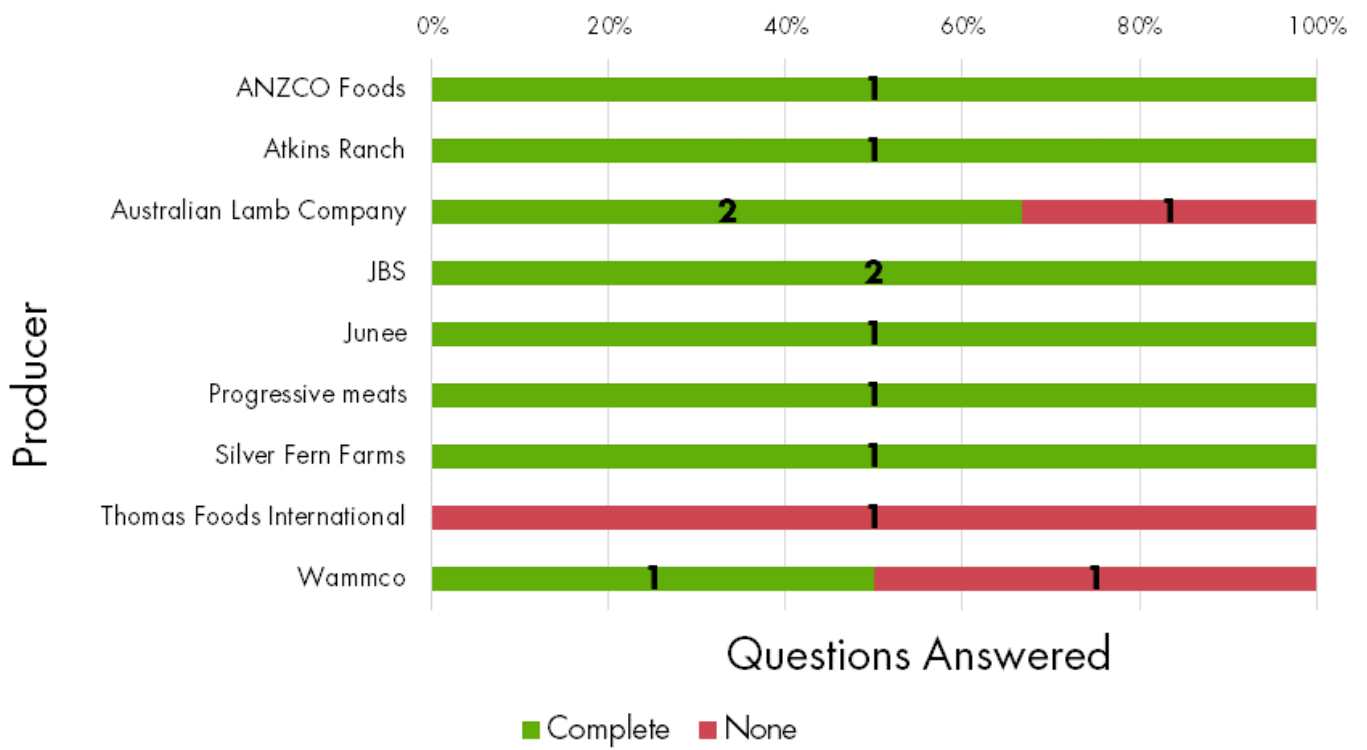
Chicken - Percent of products for which Producers answered policy questions



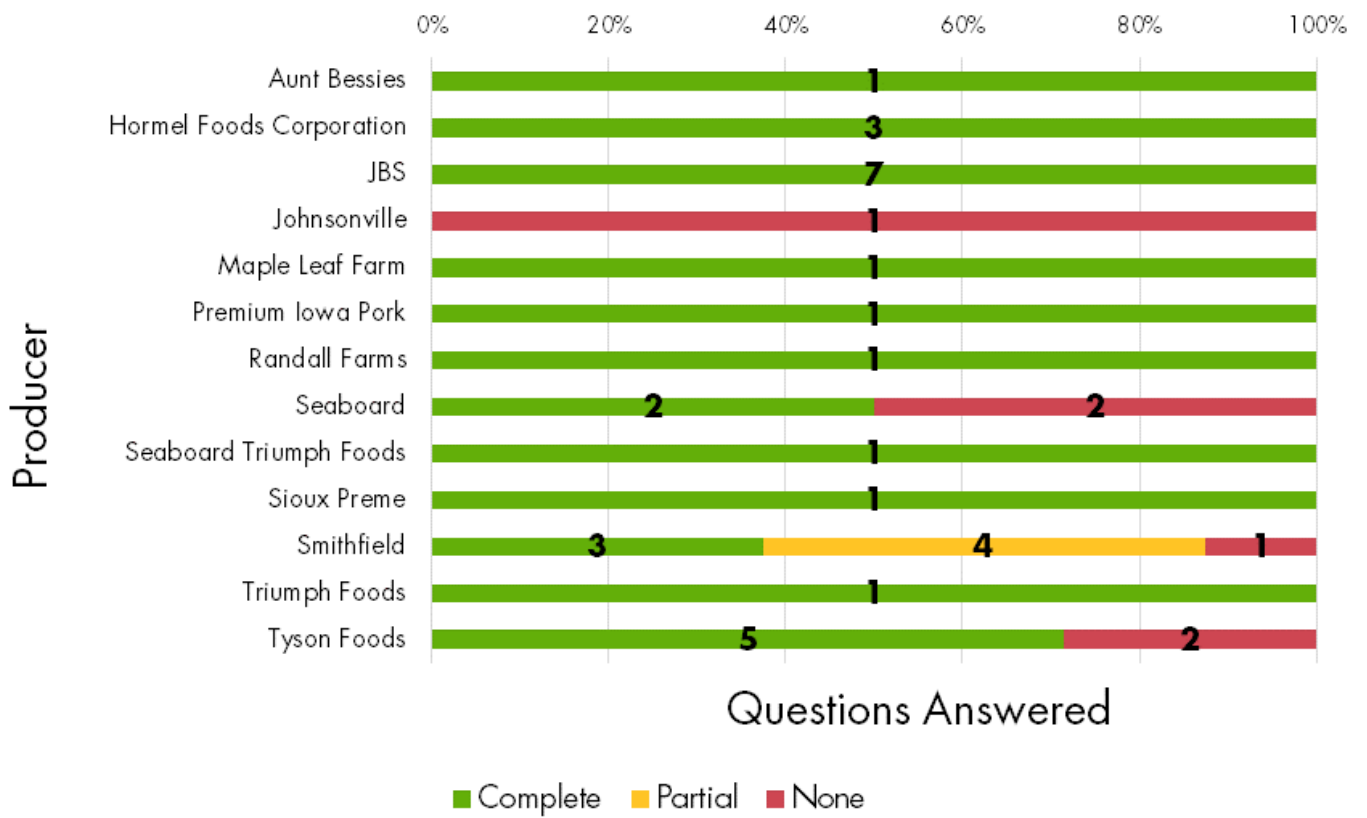
Turkey - Percent of products for which Producers answered policy questions



Lamb - Percent of products for which Producers answered policy questions



Pork - Percent of products for which Producers answered policy questions



Appendix B

Brands reported to offer Organic or No Antibiotics Ever products

Beef

Applegate
Australian Meat Group
Great Range Bison
Green Valley
H W Greenham & Sons
Harvey Beef
Laura's Lean Beef
Meyer Natural Foods
Open Nature
Organic Prairie
Respect Wagyu Burger
Signature Farms
Signature Select
Simple Truth
Simply Balanced
Spring Crossing Organic
Thomas Foods
Trader Joe's

Chicken

Archer Farms
Coleman Organic
Empire Kosher
Foster Farms
Just Bare Chicken
Nature Raised
O Organic
Open Nature
Perdue
Rim Rock Farms
Simple Truth
Simply Balanced
Trader Joe's
Tyson

Pork

Applegate
JBS
Meyer Natural Foods
Trader Joe's

Lamb

Atkins Ranch
New Zealand Spring Lamb Brand
Opal Valley
Open Nature
Spring Crossing Lamb
The Lamb Company

Turkey

Applegate
Diestel
Empire Kosher
Foster Farms

Fulton Organic

Jennie O Turkey Store

O Organic

Open Nature

Simple Truth

Simply Balanced

Trader Joe's
