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Food Safety Through Data Sharing and Socialization

Carl Schroeder

Agricultural Marketing Service

Agricultural Outlook Forum

February 20, 2015

BACKGROUND

U.S. DEPARTMENT OF AGRICULTURE

AMS



AGRICULTURAL MARKETING SERVICE

Nutrition Assistance Programs



National School Lunch Program

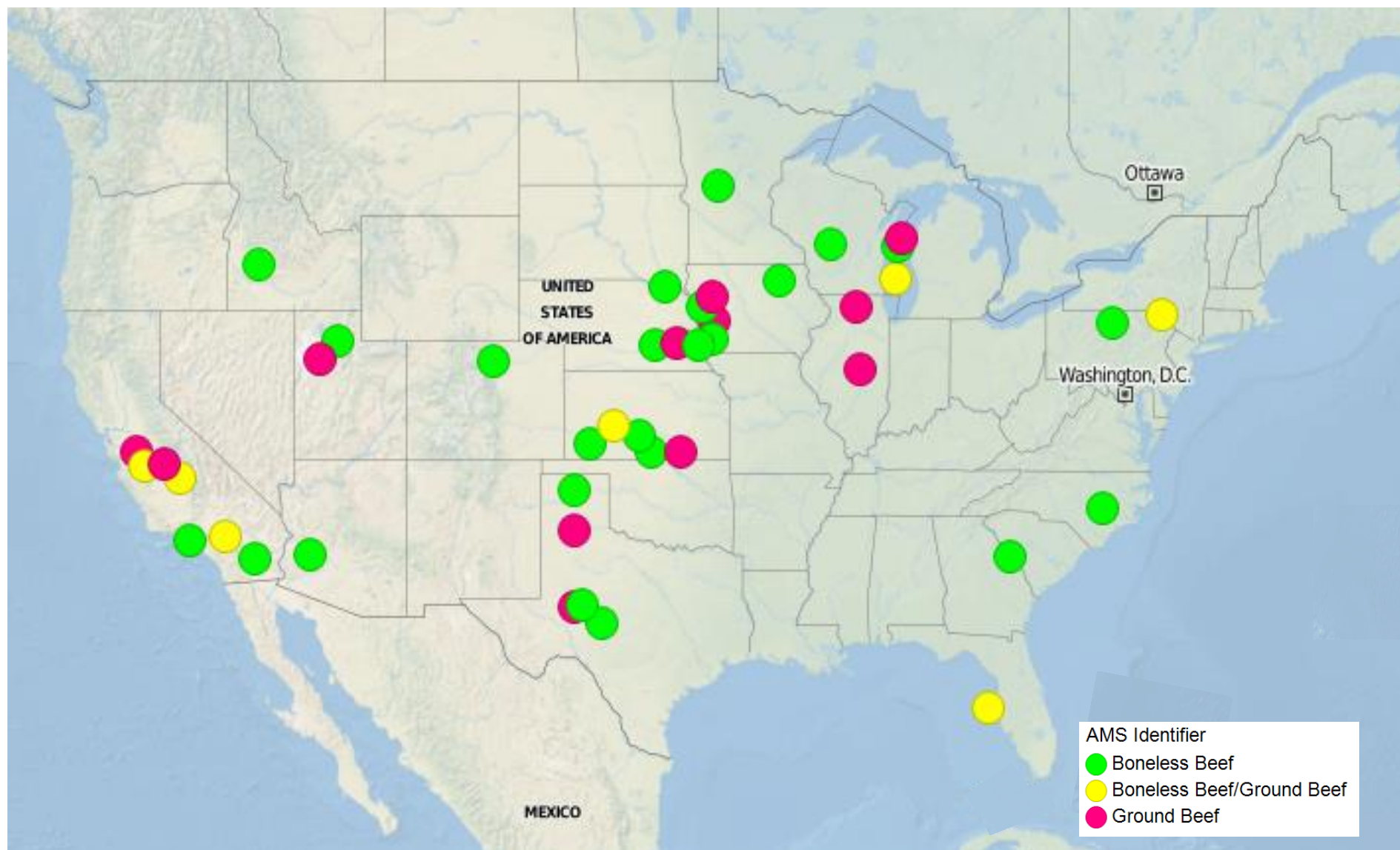


- Richard B. Russell National School Lunch Act
- 31 million school children
- 100,000 nonprofit institutions

Select Commodities—FY2014

Commodity	Total Pounds	Total Cost
Beef	113,336,000	\$300,210,943
Poultry	320,368,996	\$362,780,582
Pork	16,100,540	\$28,195,490
Eggs/Egg Products	17,965,920	\$19,318,180
Totals	467,771,456	\$710,505,195

AMS Beef Vendors

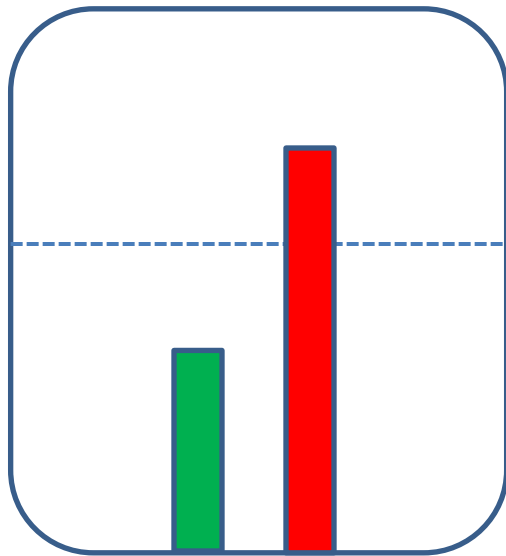


AMS Beef Purchase Specifications

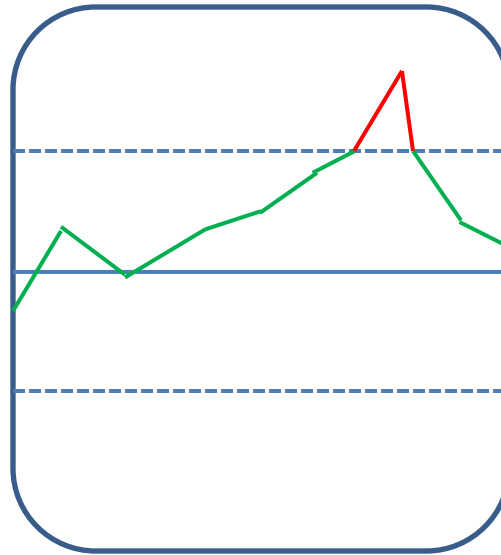
- Vendor application process
- Onsite audits
- Microbiological Testing
 - Indicator Microorganisms
 - Pathogens

AMS Beef Testing Model

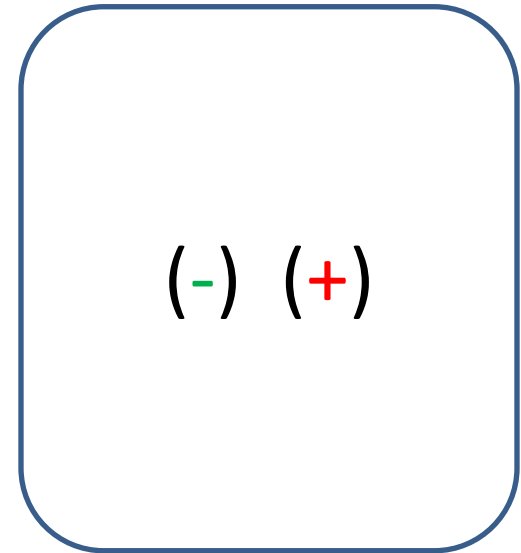
Test every 2,000 lbs. of boneless beef and every 10,000 lbs. of ground beef



Indicator
Critical Limits
(Single Lot)



Process
Control
(‘Rolling’ 20 Lots)



Pathogens
(Single Lot)

Resultant Data*

	Million Lbs. Tested	Lots Tested	No. (%) <i>E. Coli</i> O157:H7	No. (%) <i>Salmonella</i>	No. (%) APC CL	No. (%) Coliform CL	No. (%) <i>E. coli</i> CL
Boneless Beef	116.2	57,510	23 (0.04)	270 (0.47)	57 (0.12)	22 (0.04)	19 (0.03)
Ground Beef	92.3	10,183	6 (0.06)	41 (0.40)	3 (0.03)	2 (0.02)	2 (0.02)
Totals	208.5	67,693	29 (0.04)	311 (0.46)	60 (0.09)	24 (0.04)	21 (0.03%)

*FY2014

DATA SHARING



www.ams.usda.gov

http://www.ams.usda.gov/AMSv1.0/

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Food Safety and Commo... Agricultural Marketing Ser...



USDA United States Department of Agriculture
Agricultural Marketing Service **USDA ORGANIC**

Home About AMS Newsroom Opportunities Online Forms Help Contact Us

Search AMS

Microbiological Results **Go**

- Advanced Search
- Search Tips
- Market News Search

Browse by Subject

- Market News
- Commodity Areas
- Grading, Certification and Verification
- Science and Laboratories
- National Organic Program
- Commodity Purchasing
- Agricultural Transportation
- Farmers Markets and Local Food Marketing

You are here: [Home](#)

Welcome to the Agricultural Marketing Service

The U.S. Department of Agriculture's Agricultural Marketing Service administers programs that facilitate the efficient, fair marketing of U.S. agricultural products, including food, fiber, and specialty crops. [Download our Agency Factsheet.](#)

SPOTLIGHTS

?

Learn How to Become a Vendor for Federal Nutrition Assistance Programs



Join us on February 26, for a webinar on how to sell red meat, poultry and fish products to Federal nutrition assistance



I Want To

- Find an AMS Program

10:35 AM 2/18/2015

www.ams.usda.gov

The screenshot shows the USDA Agricultural Marketing Service (AMS) website. The header features the USDA logo and the text "United States Department of Agriculture Agricultural Marketing Service". Below the header is a navigation bar with links: Home, About AMS, Newsroom, Opportunities, Online Forms, Help, and Contact Us. The main content area is titled "Food Safety and Commodity Specifications" and includes a search bar, a list of links (Advanced Search, Search Tips, Market News Search), a "Browse by Subject" section, and a "Resources" section. The "Food Safety and Commodity Specifications" section describes the mission of the FSCS Division and lists various resources.

http://www.ams.usda.gov/AMSV1.0/FSCS

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Food Safety and Commo... Agricultural Marketing Ser...

USDA United States Department of Agriculture
Agricultural Marketing Service

Home About AMS Newsroom Opportunities Online Forms Help Contact Us

Search AMS

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You are here: [Home](#)

Food Safety and Commodity Specifications

Food Safety and Commodity Specifications

The mission of the Food Safety and Commodity Specifications (FSCS) Division is to create and champion the technical requirements for food safety, quality and nutrition for AMS commodity purchases of red meat, poultry, egg products, and aquatic foods. The FSCS Division collaborates with contractors, trade associations, researchers, and other stakeholders to continuously refine and strengthen the food safety and product quality requirements for Federal food purchase programs

I Want Information On

- Commodity Purchasing
- Federal Purchase Program Specifications
- [Results from Microbiological Testing of Commodities](#)
- Results from Animal Handling and Welfare Audit
- Eligible Supplier List - PDF

Resources

- National Academy of

10:13 AM 2/18/2015

www.ams.usda.gov

The screenshot shows a web browser window with the URL <http://www.ams.usda.gov/AMSv1.0/ams.fetchTemplateData.do?template=TemplateA&navID=MicrobialTestingofCommodities&rightNav1=MicrobialTestingofCommodities&topNav=&leftNav=&page=FPPMicroDataReports&resultType=&acct=lsstd>. The browser's address bar and tabs are visible at the top. The main content area displays the following information:

Microbiological Testing Results

Boneless Beef

Boneless beef produced by AMS vendors is sampled and tested for the following indicator microorganisms: standard plate count (mesophilic aerobic plate counts), total coliforms, and generic *E. coli*, with critical limits of 100,000 colony forming units (cfu)/gram (g), 1,000 cfu/g, and 500 cfu/g, respectively. Any lot of product found to exceed any of these control limits is rejected for purchase by AMS.

- [FY2015 Indicator Organism test results - PDF](#)
- [FY2014 Indicator Organism test results - PDF](#)
- [FY2013 Indicator Organism test results - PDF](#)
- [FY2012 Indicator Organism test results - PDF](#)

Boneless beef is also tested for *E. coli* O157:H7, *Salmonella*, and Non-O157 STECs (O26, O45, O103, O111, O121, O145), with zero tolerance.

- [FY2015 Pathogen test results - PDF](#)
- [FY2014 Pathogen test results - PDF](#)
- [FY2013 Pathogen test results - PDF](#)
- [FY2012 Pathogen test results - PDF](#)
- [FY2015 STEC Pathogen test results - PDF](#)
- [FY2014 STEC Pathogen test results - PDF](#)

Ground Beef

Ground beef produced by AMS vendors is sampled and tested for the following indicator microorganisms: standard plate count (mesophilic aerobic plate counts), total coliforms, and generic *E. coli*, with critical limits of less than 100,000 cfu/g, 1,000 cfu/g, and 500 cfu/g, respectively. Any lot/sub-lot of product found to exceed any of these control limits is rejected for purchase by AMS.

The bottom of the screenshot shows the Windows taskbar with various application icons and the system clock displaying 10:15 AM on 2/18/2015.

www.ams.usda.gov

http://www.ams.usda.gov/AM5v1.0/getfile?dDocName=STELPRDC5106312

usda.gov

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Food Safety and Commo... Agricultural Marketing Ser...

AMS Boneless Beef Supplier Pathogen Performance: *E. coli* O157:H7 and *Salmonella* - Fiscal Year: 2014^{1/2/}

Supplier	# Lots Produced (% of Total)	<i>E. coli</i> O157:H7 ^{3/}		<i>Salmonella</i> ^{4/}	
		# Positive	% Positive	# Positive	% Positive
S1	9,771 (18.2)	8	0.08	63	0.64
S2	254 (0.5)	0	0	2	0.79
S3	171 (0.3)	0	0	1	0.58
S4	7,092 (13.2)	7	0.10	50	0.71
S5	13,696 (25.5)	17	0.12	22	0.16
S6	300 (0.6)	5	1.67	0	0
S7	2,672 (5.0)	0	0	3	0.11
S8	---	---	---	---	---
S9	1,962 (3.7)	0	0	1	0.05
S10	1,793 (3.3)	0	0	3	0.17
S11	3,075 (5.7)	1	0.03	35	1.14
S12	---	---	---	---	---
S13	---	---	---	---	---
S14	4,562 (8.5)	0	0	23	0.50
S15	---	---	---	---	---
S16	---	---	---	---	---

10:20 AM
2/18/2015

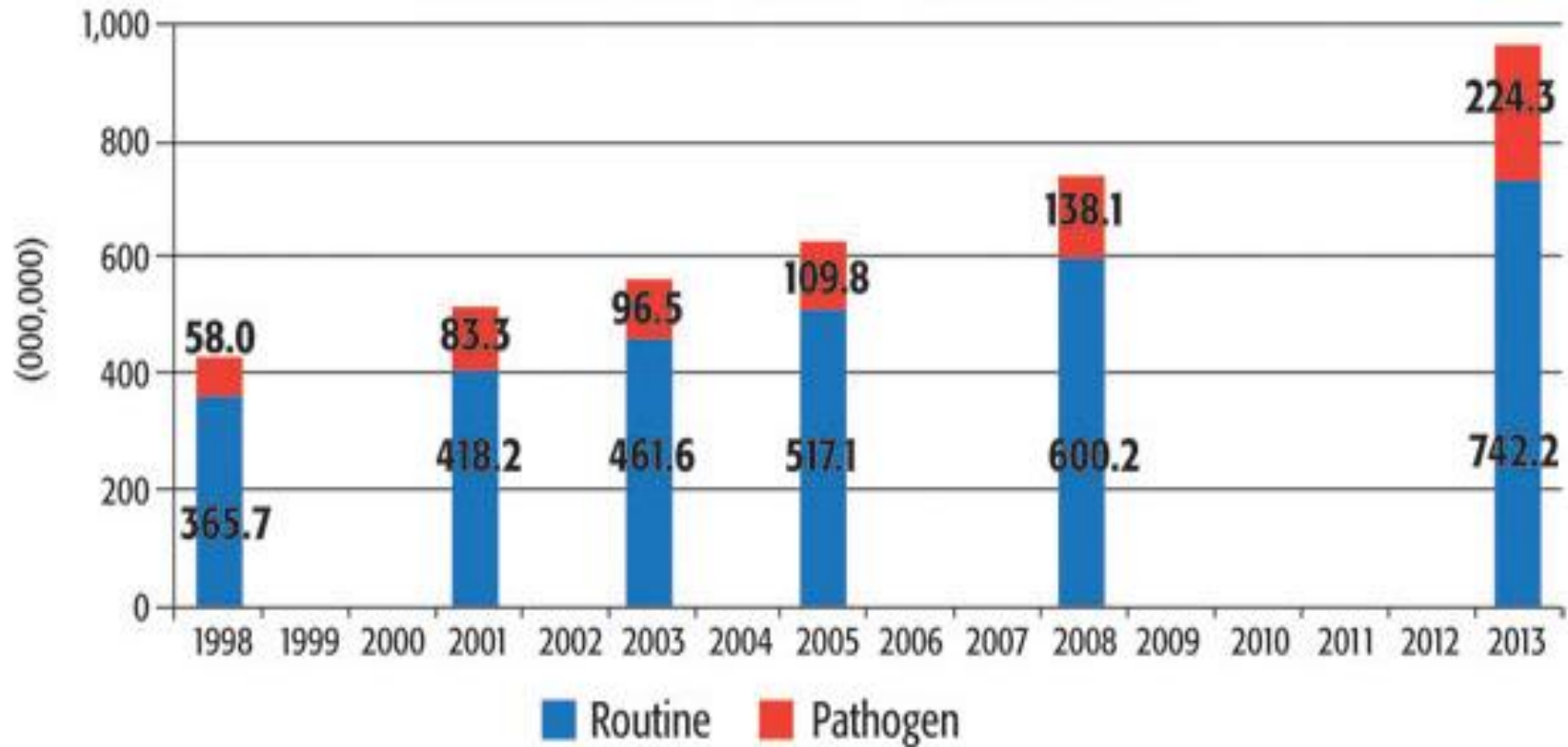
Database Privileges

BonelessBeef	Finished Product	Fat							
BonelessBeef-MicroTest									
Production Date	Lot Number	Material_Code	Sample Selection	Pounds produced	Sample Number	APC	APC CPU	Coliform	Coliform CPU
2/14/2015	C-12	211	Non-SPC	2000	SIL15351444652	9		9	
2/14/2015	C-11	211	SPC	2000	SIL15351444651	9	667.75	9	999.00
2/14/2015	C-10	211	Non-SPC	2000	SIL15351444650	20		9	
2/14/2015	C-9	211	Non-SPC	2000	SIL15351444649	9		9	
2/14/2015	C-8	211	Non-SPC	2000	SIL15351444648	90		9	
2/14/2015	C-7	211	Non-SPC	2000	SIL15351444647	20		9	
2/14/2015	C-5	211	Non-SPC	2000	SIL15351444646	20		9	
2/14/2015	C-4	211	Non-SPC	2000	SIL15351444644	30		9	
2/14/2015	C-3	211	SPC	2000	SIL15351444643	9	662.07	9	999.00
2/14/2015	C-2	211	Non-SPC	2000	SIL15351444642	10		9	
2/14/2015	C-1	211	Non-SPC	2000	SIL15351444641	20		9	
2/13/2015	C-31	211	SPC	2000	SIL15351427692	10	614.14	9	999.00
2/13/2015	C-22	211	Non-SPC	2000	SIL15351427689	10		9	
2/13/2015	C-16	211	Non-SPC	2000	SIL15351427684	9		9	

DATA SOCIALIZATION



Food Microbiology Tests - Worldwide

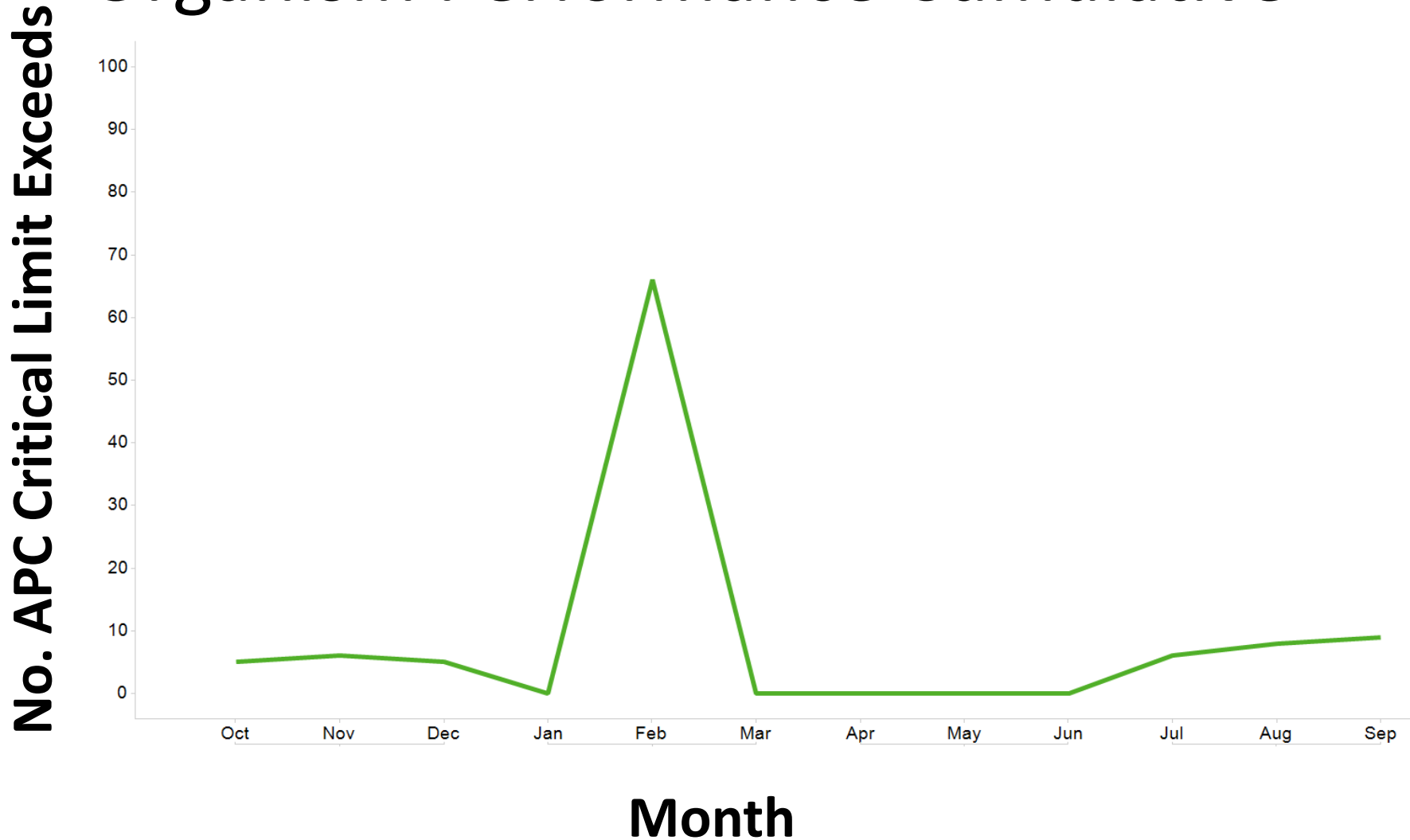


Weschler, T. 2013. Comparison of microbiology testing practices. *Food Safety Magazine*. June/July.

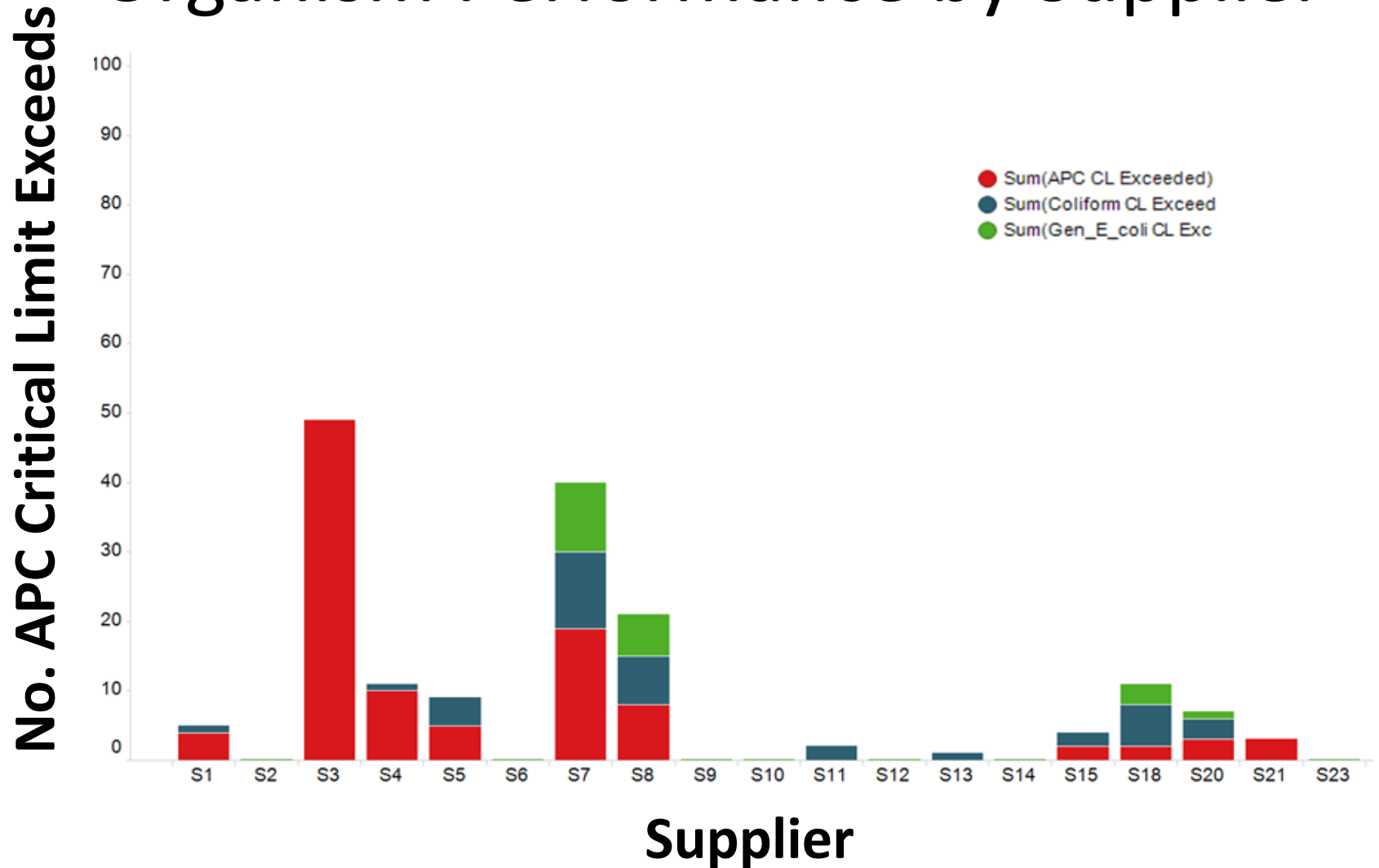
INDICATOR MICROORGANISMS



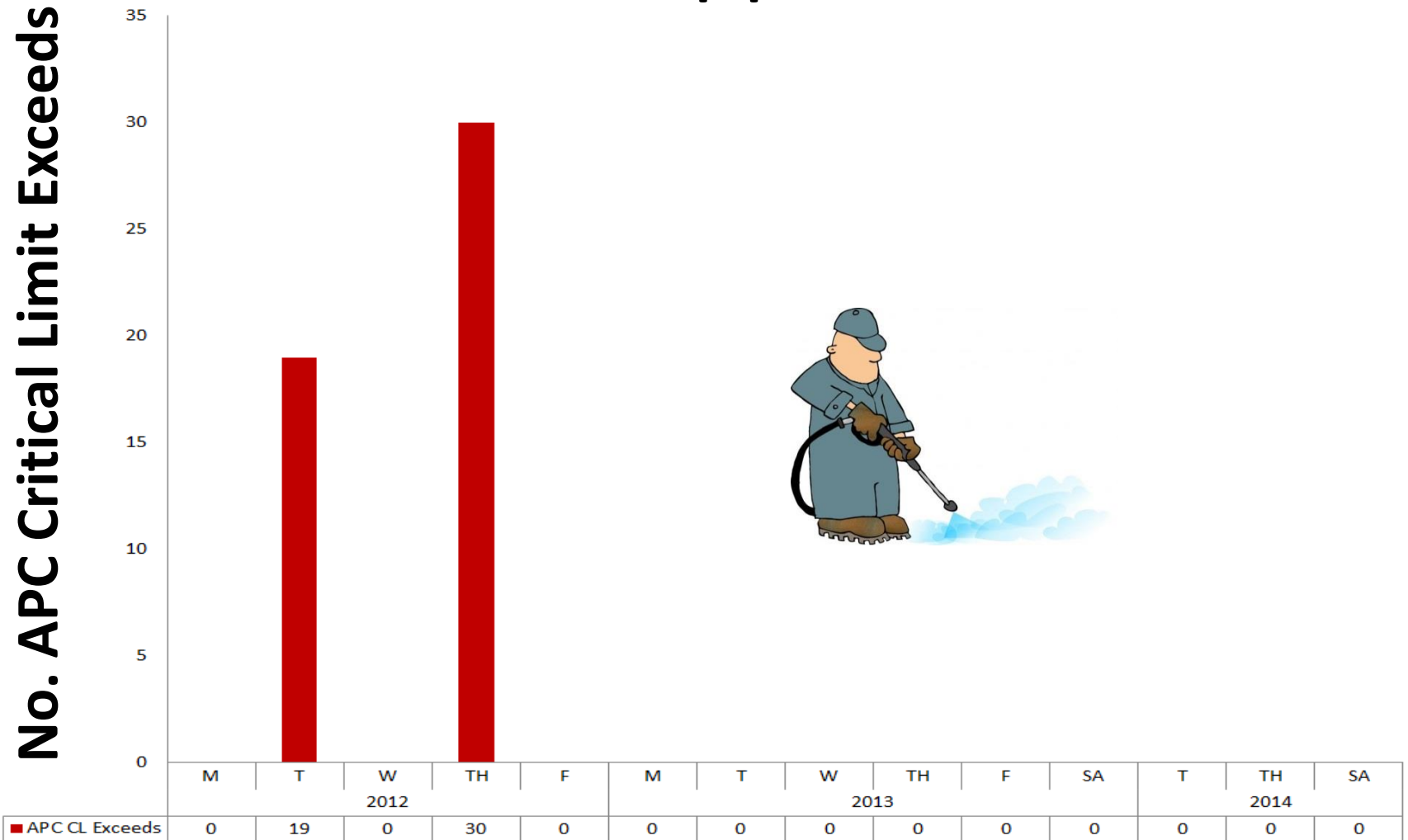
AMS Boneless Beef: FY12 – Indicator Organism Performance Cumulative



AMS Boneless Beef: FY12 – Indicator Organism Performance by Supplier

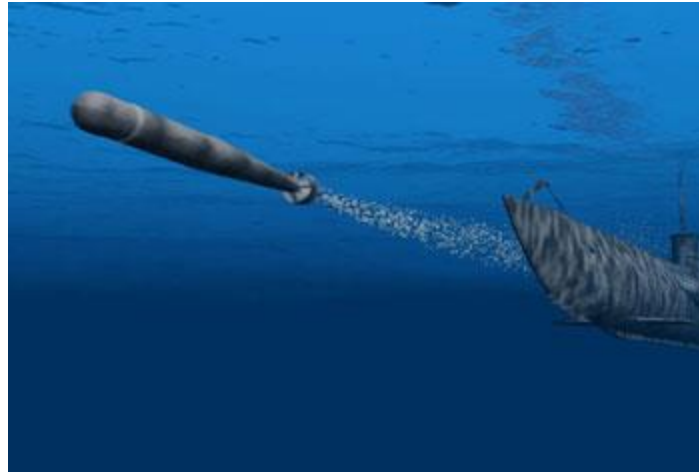


AMS Supplier 3

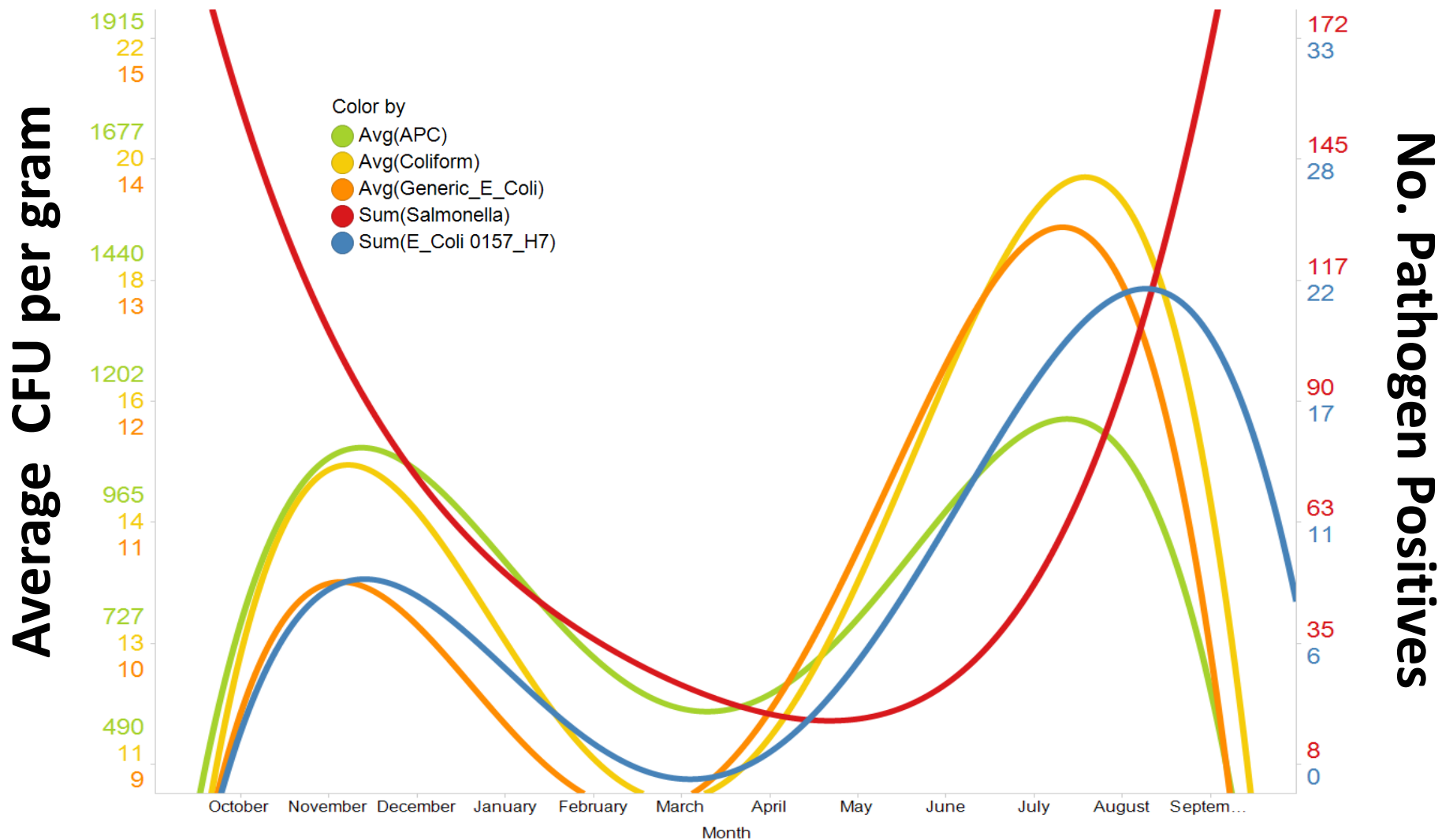


Day and Fiscal Year

PATHOGENS



AMS Boneless Beef: FY12-13-14 - Microbiological Trend Analysis



AMS Boneless Beef: FY14:

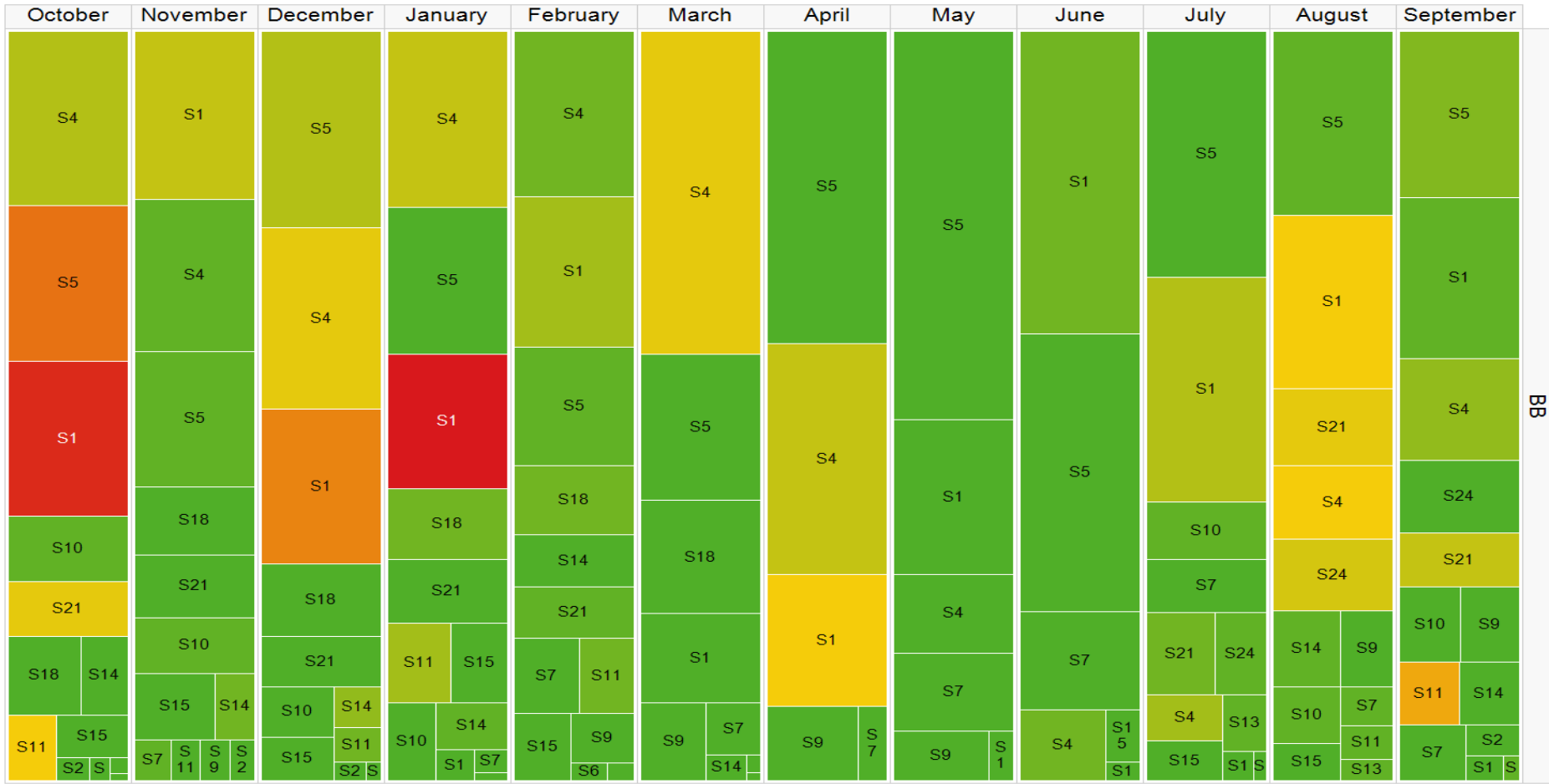
Salmonella Performance x Pounds Produced

x Supplier x Month

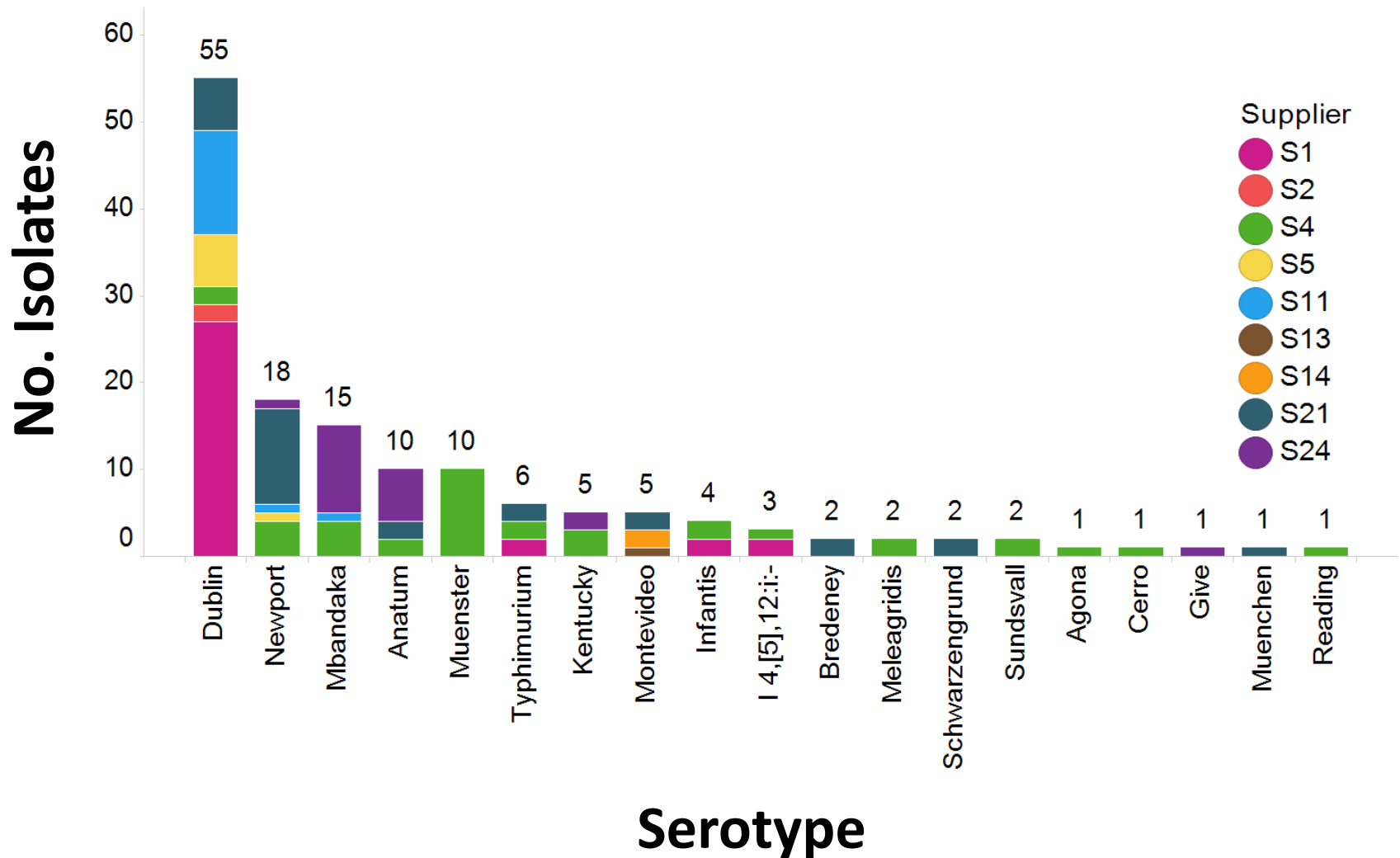
Color by
Sum(Salmonella)
● Max (20.00)
● 10.00
● Min (0.00)

Size by
Sum(Pounds_prod)

Hierarchy
Supplier Identifier



AMS Boneless Beef: FY13-14 - *Salmonella* Serotypes by Supplier



FUTURE OF FOOD SAFETY



Decipher Data



Share and Socialize Data



Collaborative Problem Solving



Acknowledgments

- Rod Bowling
- Chandramohan Chawan
- Darin Doerscher
- Faras Khan
- Terry Lutz
- Steve Whisenant