

# Food Safety Through Data Sharing and Socialization

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*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

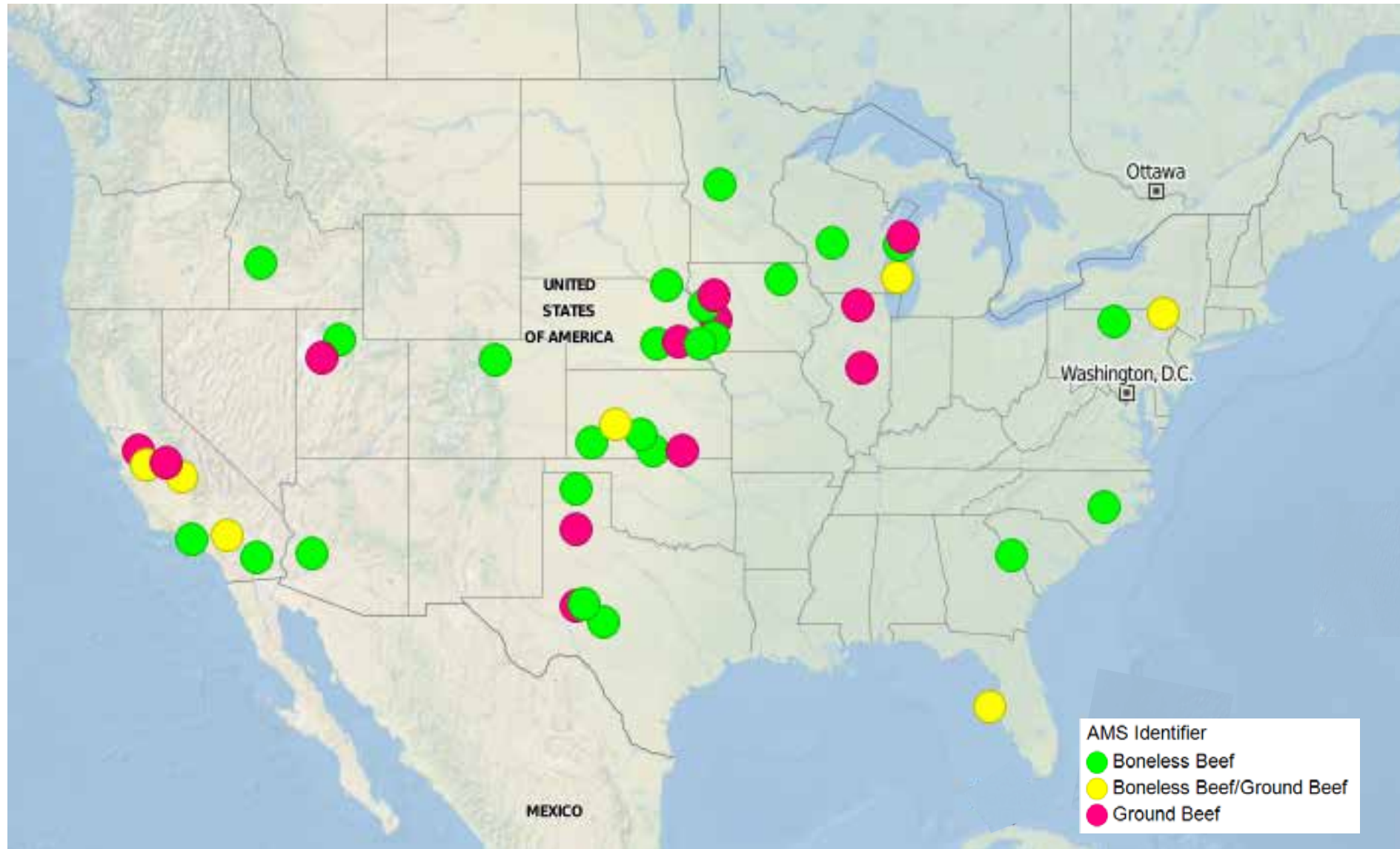


- Richard B. Russell National School Lunch Act
- 31 million school children
- 100,000 nonprofit institutions

# 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
<b>Totals</b>	<b>467,771,456</b>	<b>\$710,505,195</b>

# AMS Beef Vendors



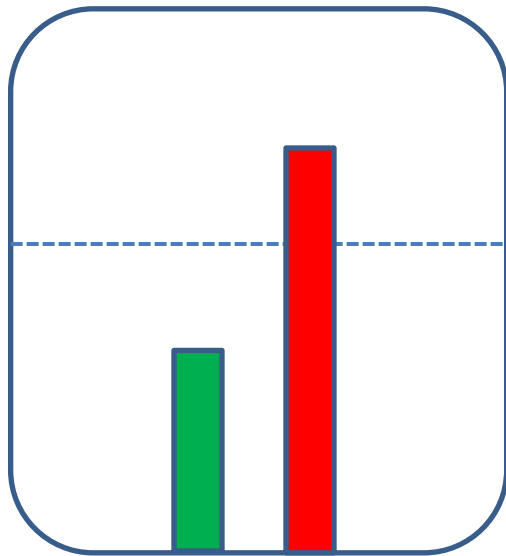
# AMS Beef Purchase Specifications

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

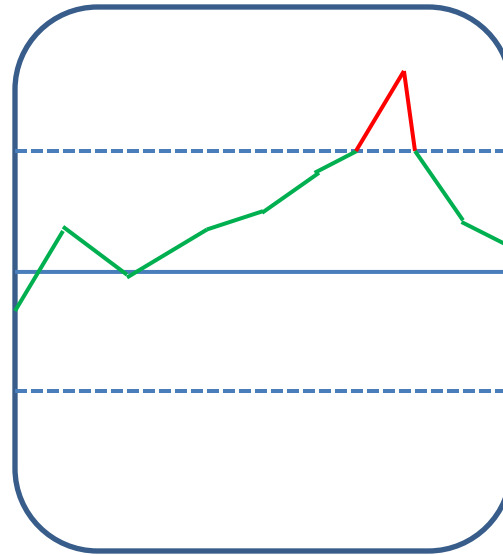


# AMS Beef Testing Model

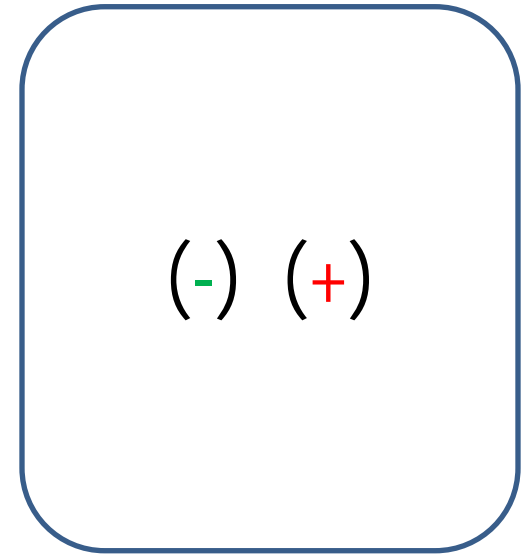
Test every 2,000 lbs. of boneless beef and every 10,000 lbs. of ground beef



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)
<b>Totals</b>	<b>208.5</b>	<b>67,693</b>	<b>29 (0.04)</b>	<b>311 (0.46)</b>	<b>60 (0.09)</b>	<b>24 (0.04)</b>	<b>21 (0.03%)</b>

\*FY2014

# DATA SHARING



# www.ams.usda.gov

The screenshot shows the homepage of the USDA Agricultural Marketing Service. The header features the USDA logo and the text "United States Department of Agriculture Agricultural Marketing Service". Below the header is a navigation menu with links for Home, About AMS, Newsroom, Opportunities, Online Forms, Help, and Contact Us. The main content area includes a search bar, a welcome message, and a spotlight on becoming a vendor for federal nutrition assistance programs. The sidebar contains a search section and a "Browse by Subject" menu. The footer includes a "Fuel Up to Play 60" logo and a "I Want To" section.

http://www.ams.usda.gov/AMSt10/

Agricultural Marketing Service

File Edit View Favorites Tools Help

Food Safety and Comm... Agricultural Marketing Ser...

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

Home About AMS Newsroom Opportunities Online Forms Help Contact Us

**Search AMS**

Microbiological Results

- 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

**USDA Market News**  
Compete Smarter

**FUEL UP TO Play 60**

**I Want To**

- Find an AMS Program

10:39 AM 2/18/2013

# www.ams.usda.gov

The screenshot shows a web browser window displaying the USDA Agricultural Marketing Service website. The browser's address bar shows the URL <http://www.ams.usda.gov/AMSv1.D/FSCS>. The website header features the USDA logo and the text "United States Department of Agriculture Agricultural Marketing Service". Below the header is a navigation menu with links for 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 "You are here: Home" breadcrumb, and a list of links for "I Want Information On" and "Resources".

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

Home About AMS Newsroom Opportunities Online Forms Help Contact Us

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

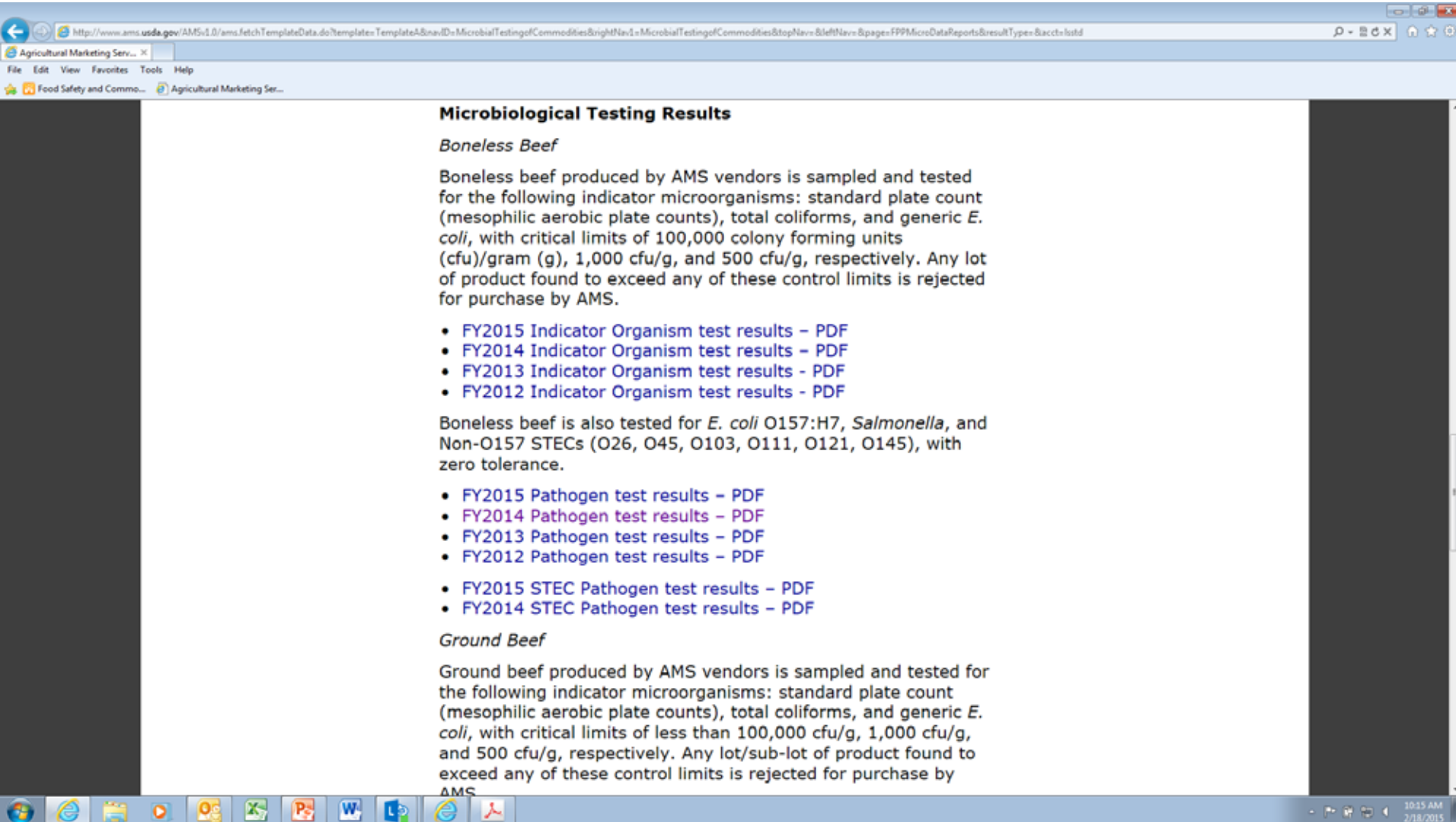
**Search AMS**

**Browse by Subject**

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



# 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=FPFMicroDataReports&resultType=&acct=lsttd>. The browser's address bar, menu bar (File, Edit, View, Favorites, Tools, Help), and taskbar are visible. 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 Windows taskbar at the bottom shows the system clock as 10:15 AM on 2/18/2015.

# www.ams.usda.gov

AMS Boneless Beef Supplier Pathogen Performance: *E. coli* O157:H7 and *Salmonella* - Fiscal Year: 2014<sup>1,2/</sup>

Supplier	# Lots Produced (% of Total)	<i>E. coli</i> O157:H7 <sup>3/</sup>		<i>Salmonella</i> <sup>4/</sup>	
		# 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	---	---	---	---	---

# Database Privileges

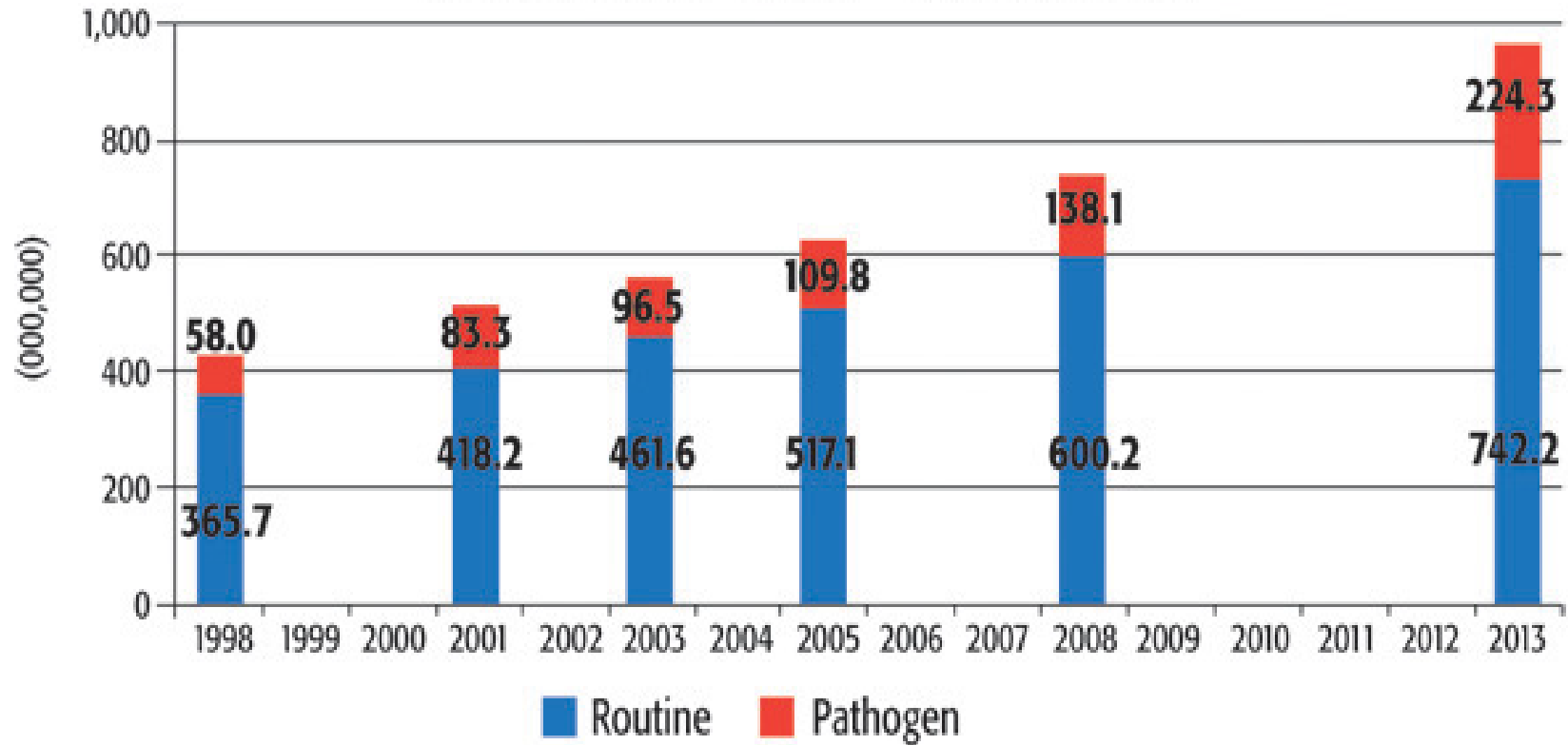
BonelessBeef-MicroTest									
Production Date	Lot Number	Material_Code	Sample Selection	Pounds produced	Sample Number	APC	APC CPU	Coliform	Coliform CPU
2/14/2015	C-12	211	Non-SPC	2000	SIL15351444652	9		9	
2/14/2015	C-11	211	SPC	2000	SIL15351444651	9	667.75	9	999.00
2/14/2015	C-10	211	Non-SPC PC	2000	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.

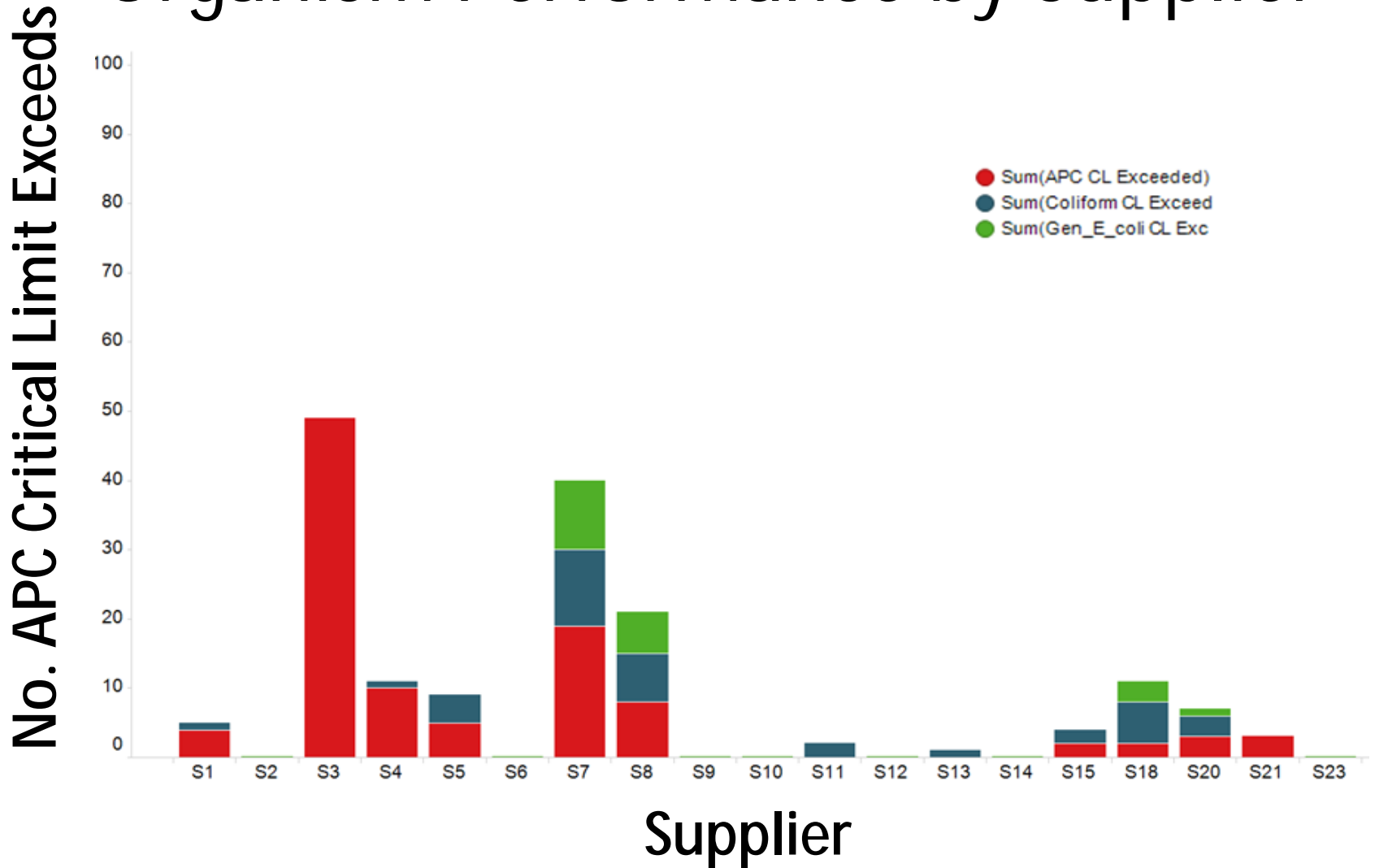
# INDICATOR MICROORGANISMS



# AMS Boneless Beef: FY12 – Indicator Organism Performance Cumulative

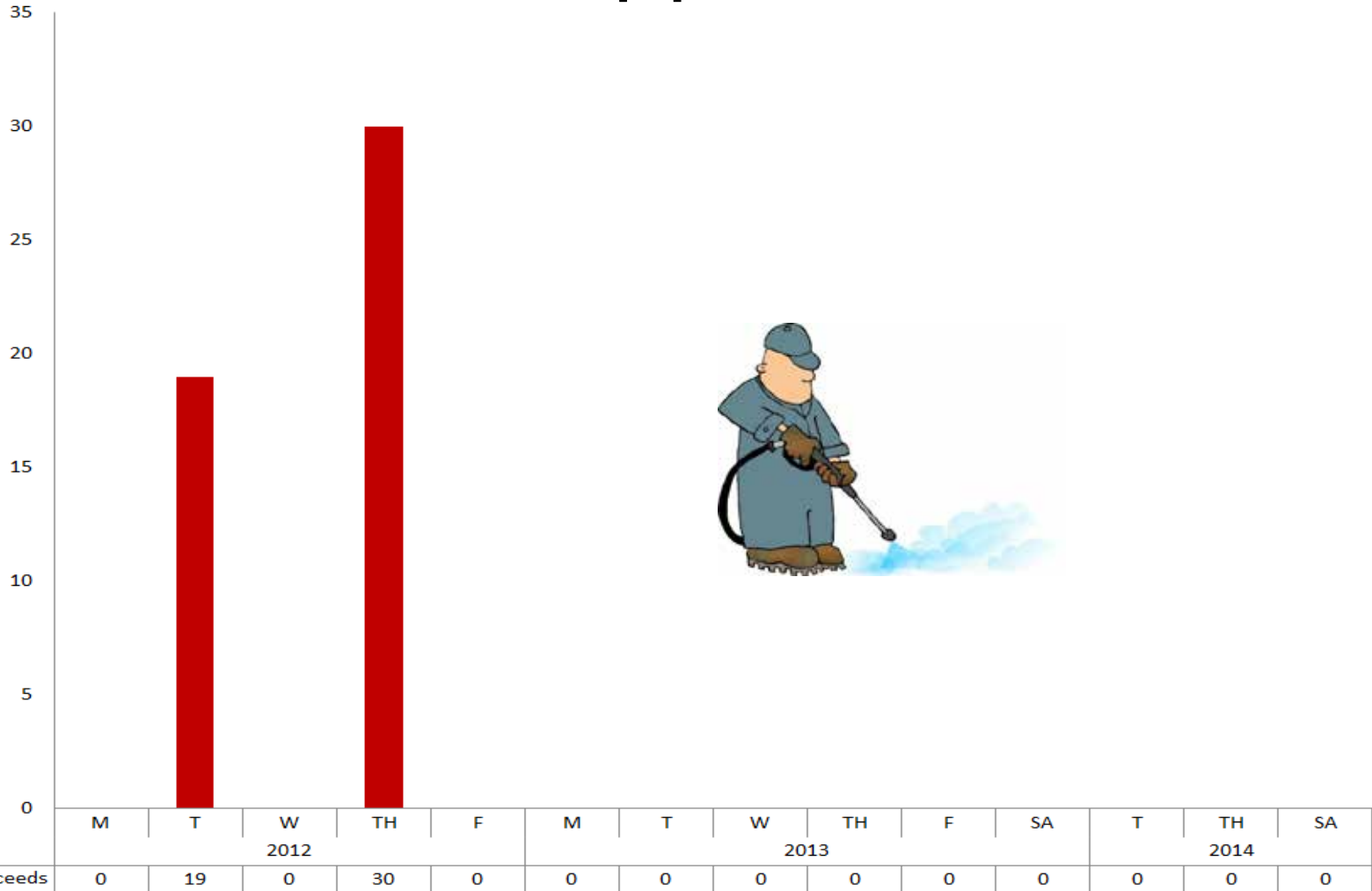


# AMS Boneless Beef: FY12 – Indicator Organism Performance by Supplier



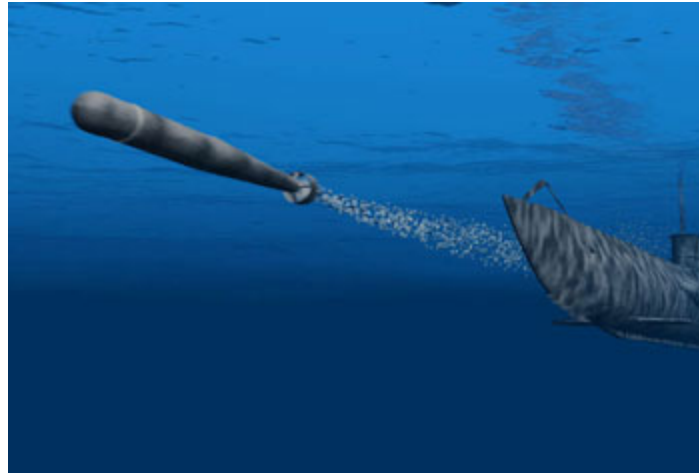
# AMS Supplier 3

No. APC Critical Limit Exceeds



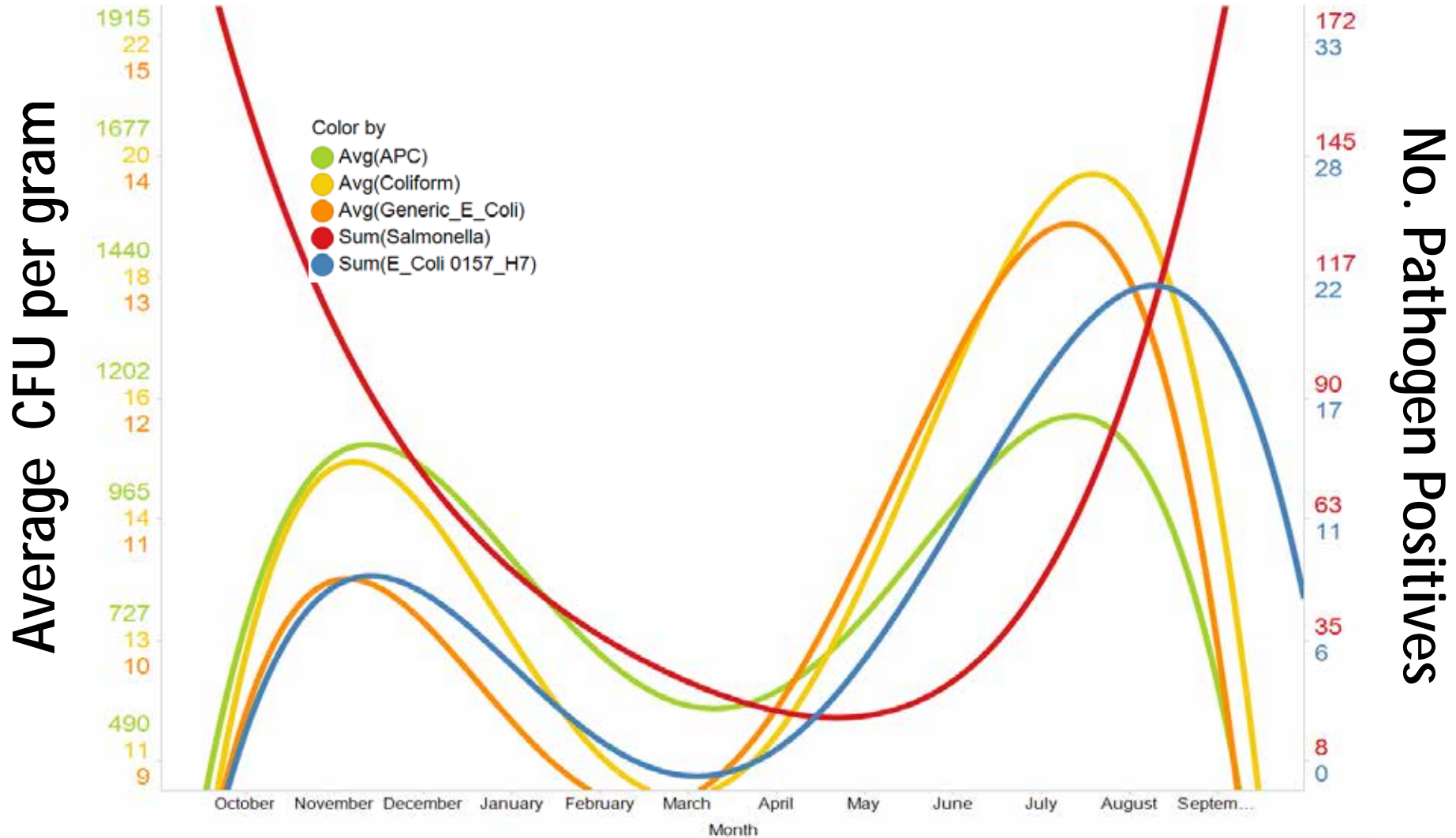
Day and Fiscal Year

# PATHOGENS





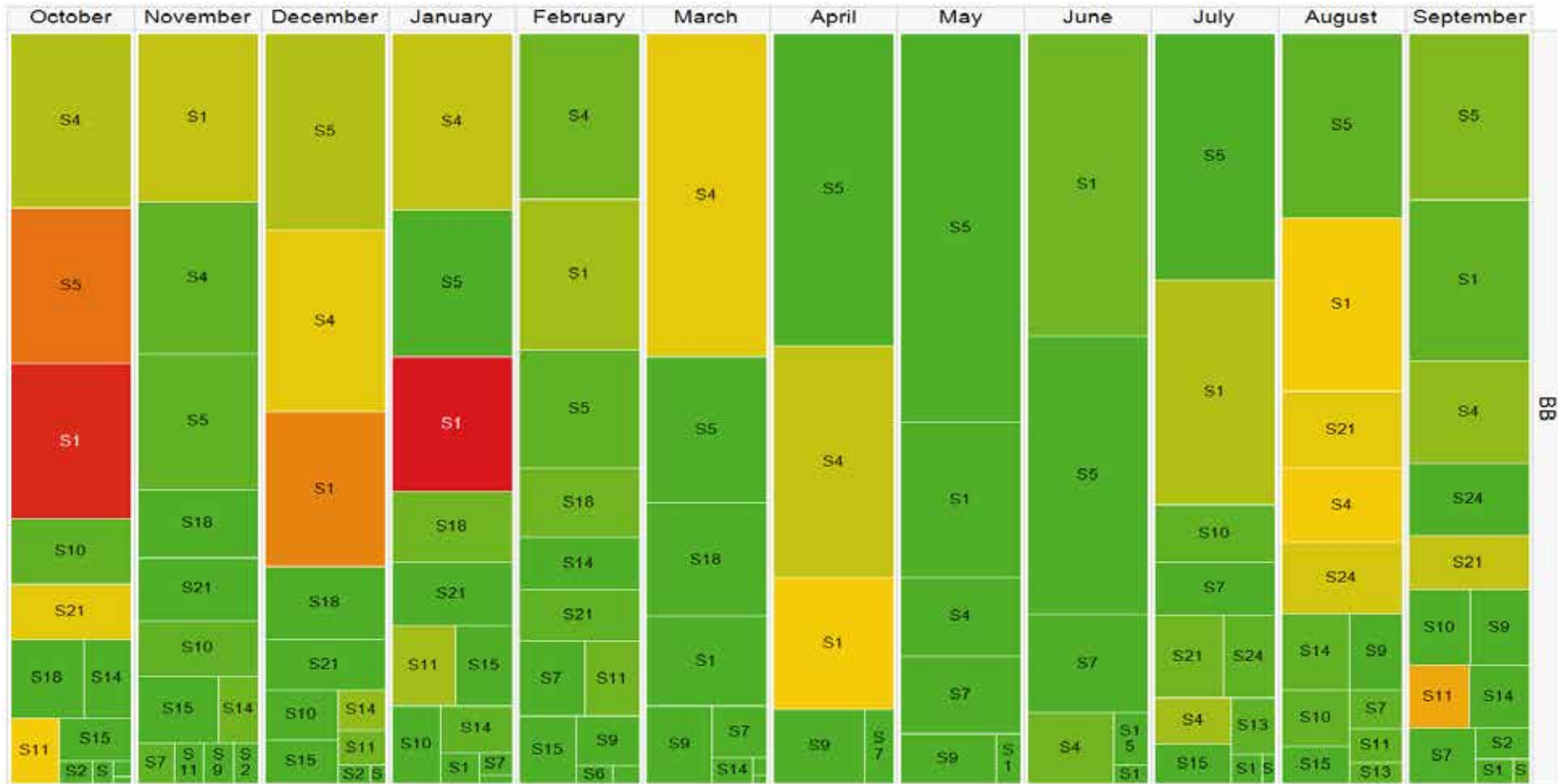
# AMS Boneless Beef: FY12-13-14 - Microbiological Trend Analysis



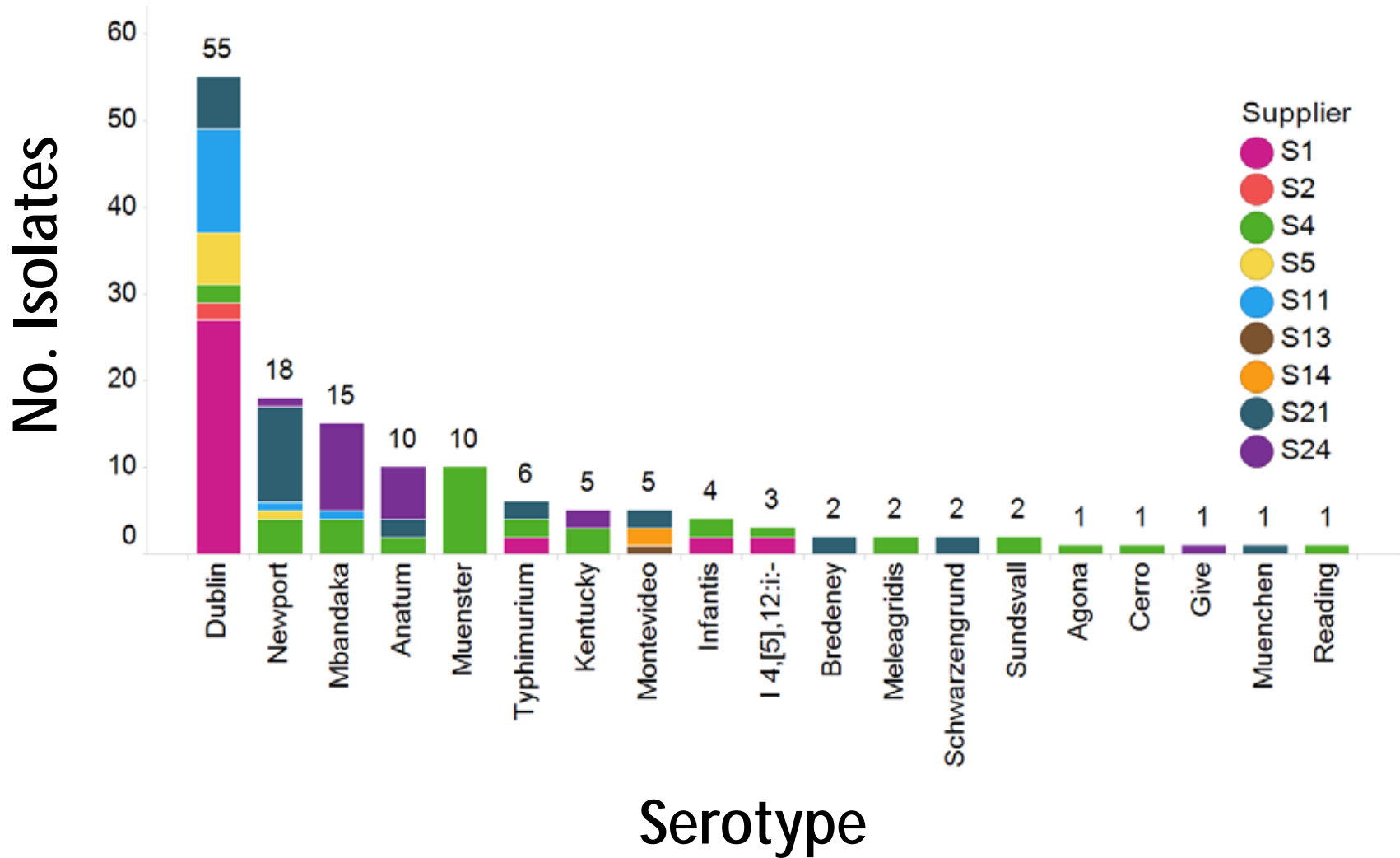
# AMS Boneless Beef: FY14: Salmonella Performance x Pounds Produced x Supplier x Month

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