Individual *Salmonella* Category Status for Poultry Carcass Establishments

Webinar Overview

Today, we will review the nuts and bolts of *Salmonella* categories for raw poultry sampling, as well as chicken and turkey carcasses.

By the end of this webinar, you will understand how *Salmonella* categories work, including:

- ❑ How samples are assigned
- ❑ How categories are determined
- ❑ How establishments move between categories
- ❑ Where, when, and how the category data is available

FSIS Sampling Practices

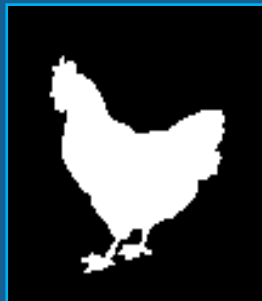Both at Large and Small or Very Small Establishments

Objectives

In this section, we will discuss FSIS sampling practices for young chickens and turkeys, including:

- Review scheduling of routine samples

- Discuss frequency of sampling assignments

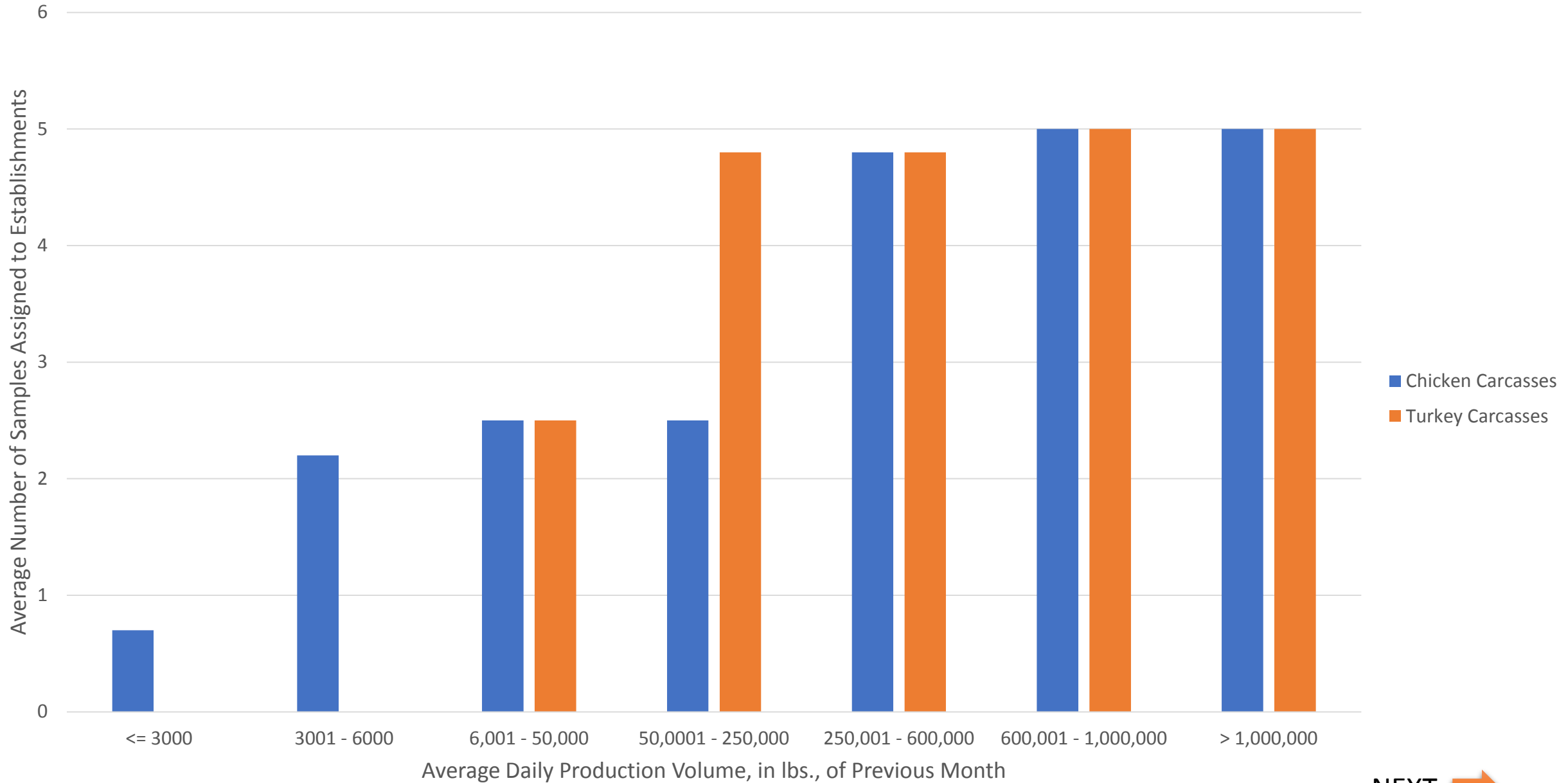- Review follow-up sample assignments
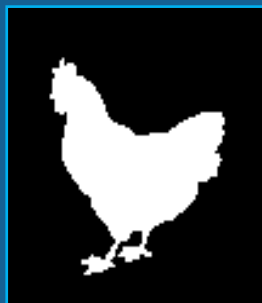
Scheduling of Routine Samples

(Click to open example)

- Active establishments with annual slaughter total > 20,000 birds are included in the monthly sampling frame. (Excludes birds slaughtered under religious exemption.) Note: FSIS is sampling very low volume and religious exempt product under an exploratory program.

- Each establishment is assigned to a daily production volume category based on annual average daily slaughter.

- Within each production volume category, samples are assigned based on several factors. These include past rates of *Salmonella* in the production volume category.

Average Number of Samples Assigned to Poultry Slaughter Establishments by Volume Range

Average Number of Samples Assigned to Establishments (y-axis)

Average Daily Production Volume, in lbs., of Previous Month (x-axis)

Legend: Chicken Carcasses, Turkey Carcasses

x-axis categories: <= 3000, 3001 - 6000, 6,001 - 50,000, 50,0001 - 250,000, 250,001 - 600,000, 600,001 - 1,000,000, > 1,000,000

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Frequency of Sampling Assignments

(Click to open example)

- Larger-volume establishments are assigned more samples than smaller-volume establishments; with a maximum of 5 samples assigned per month per product.

- Some randomization is involved resulting in variations from month to month.

- All establishments assigned at least 10 samples per year.

Number of Samples Assigned to Poultry Slaughter Establishments

Average Daily Poduction Volume, in lbs, of Previous Month	Chicken Carcasses	Turkey Carcasses
<= 3000	0 - 1	
3001 - 6000	1 - 3	
6,001 - 50,000	2 - 4	2 - 3
50,0001 - 250,000	2 - 4	4 - 5
250,001 - 600,000	4 - 5	4 - 5
600,001 - 1,000,000	5	5
> 1,000,000	5	5

Follow-up Sampling

Young Chickens and Turkeys

- Establishments that do not meet the *Salmonella* performance standard (enter Category 3), will receive follow-up sampling.

- Currently 16 follow-up samples are assigned in most situations.

- For low volume producers, FSIS assigns 8 follow-up samples as explained in the FRN.

How FSIS Makes Category Determinations

Objectives

In this section, we will discuss how FSIS makes category determinations, including:

- Explain establishment category definitions

- Review of establishment categorization determination using a two-step process

- Review percent positive calculations

- Discuss Adjusted Percent Positive Rule

Establishment Category Definitions

Category 1

Consistent Process Control: Establishments that achieve 50 percent or less of maximum allowable percent positive during all completed 52-week moving windows over the last 13 weeks.

Category 2

Variable Process Control: Establishments at or below the maximum allowable percent positive for all completed 52-week moving windows, but have results greater than 50 percent of the maximum allowable percent positive during any completed 52-week moving window over the last 13 weeks.

(Continued)

# Establishment Category Definitions

Category 3

Highly Variable Process Control: Establishments with greater than the maximum allowable percent positive during any completed 52-week moving window over the last 13 weeks.

Salmonella Performance Category			
Product Class	Category 1	Category 2	Category 3
Young Chicken Carcasses	0 - 4.9%	>4.9 - 9.8%	>9.8%
Young Turkey Carcasses	0 - 3.5%	>3.5% - 7.1%	>7.1%

Determining Categories

Using the Two-Step Process
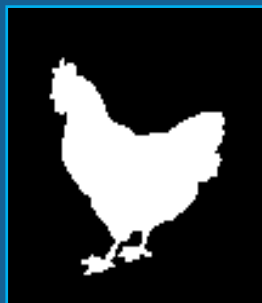
(Click to open example)

Step 1: Determine Percent Positive for Each Window

Each week, FSIS computes the percent positive for the most recently completed window.

a. A window includes all samples in the previous 52 weeks.

b. This percentage is compared to the performance standard to determine a category for the window (1, 2, or 3).

Step 2: Assess the Establishment Category
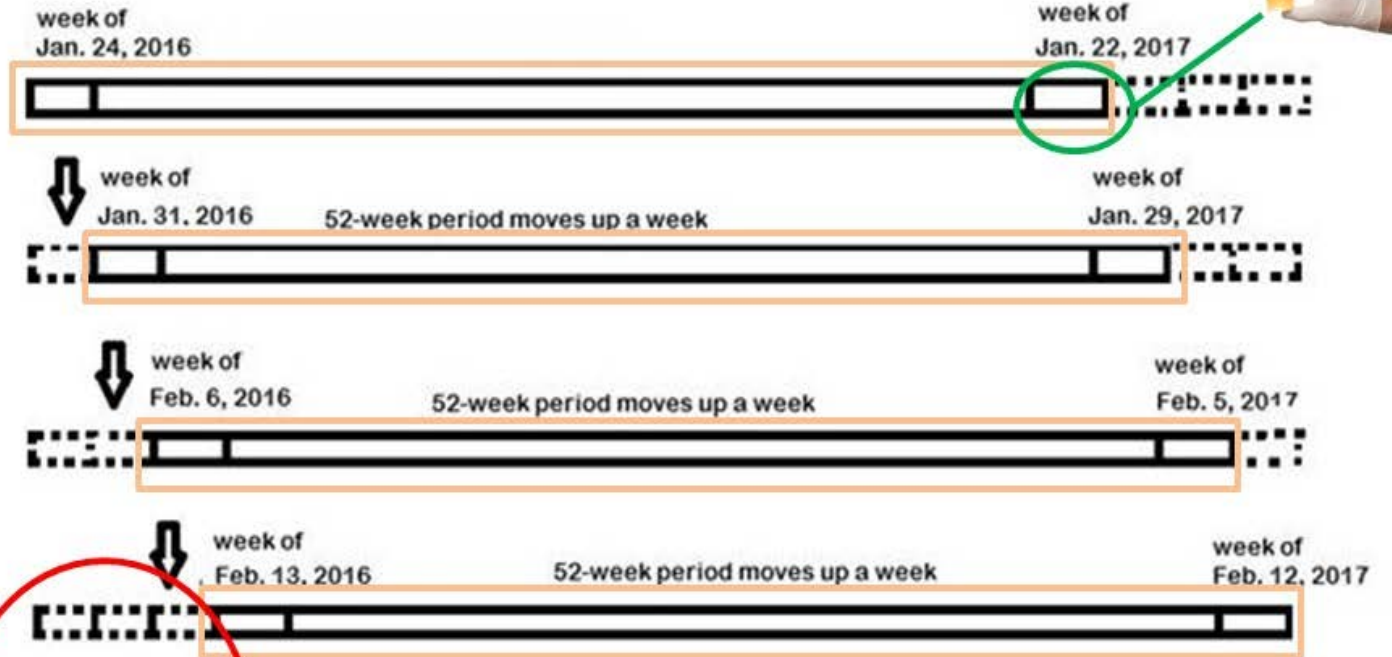
How is an establishment category computed?

a. The most recent 13 windows' categories are assessed.

b. The largest category from any of those 13 windows determines the establishment category (1, 2, or 3).

Moving Window

Each week, the 52-week testing period moves up one week.

Each new week will become the updated "Week 52," shifting the window forward

week of Jan. 24, 2016

week of Jan. 22, 2017

week of Jan. 31, 2016

52-week period moves up a week

week of Jan. 29, 2017

week of Feb. 6, 2016

52-week period moves up a week

week of Feb. 5, 2017

week of Feb. 13, 2016

52-week period moves up a week

week of Feb. 12, 2017

Each new week, results from the beginning of the previous window drop off as the window shifts forward...

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Percent Positive Calculation

- The *Salmonella* performance standard for young chicken carcasses is 9.8% (5 of 51 samples), and 7.1% (4 of 56 samples) for young turkey carcasses.

- Establishments must have a minimum of 11 samples (young chicken carcasses) or 14 samples (young turkey carcasses) for the window to be evaluated against the performance standard.

  - Exception: Exceeding the maximum number of positives allowed in fewer than 11 or 14 samples (e.g., six positives in nine young chicken carcass samples).

Percent Positive Calculation

- Establishments that have collected too few samples to evaluate at least one of the last 13 windows against the performance standard will be listed as NA in categorization reports.

- Establishments with fewer than the targeted number of samples receive an adjustment to their calculated percent positive.

Adjusted Percent Positive Calculation

- Used when the number of samples in the moving window under evaluation is less than 51 for young chicken carcasses, 56 for young turkey carcasses.

- Number of positive results is reduced by 1 before calculating percent positive, and comparing to the performance standard.

Formula: (Positive results – 1)/total samples

E.g., Est. A has 4 positives, out of 39 samples.

(4-1)/39 = 3/39 = 7.7%

Performance Standards for Small Establishments

✓ Smaller establishments with fewer shifts and production days typically are scheduled for fewer samples.

✓ Fewer samples means that an establishment could potentially be truly passing (or failing) but – due to random chance alone – FSIS might misclassify the establishment.

   Analogy: with just 5 flips of a fair coin, the outcome of head/tails may randomly suggest it is not fair. But 50 flips will leave little doubt as to the true nature of the coin.

✓ To counter-balance, FSIS sets the allowable positives for small sample numbers (<51 young chicken carcasses samples and <56 young turkey carcasses samples) so that those establishments are not at a disadvantage for having fewer collected samples – effectively FSIS allows an additional positive sample before categorizing.

(Continued)

Performance Standards for Small Establishments

Perf. standard – Chicken Carcass Establishment (9.8%)	# of Samples	# of Positives	Equation	Window Category
Adjusted Percent Positive (APP)	25	3	(3-1)/25=8.0%	2
Max Percent Positive, If APP not used	25	3	(3)/25=12.0%	3

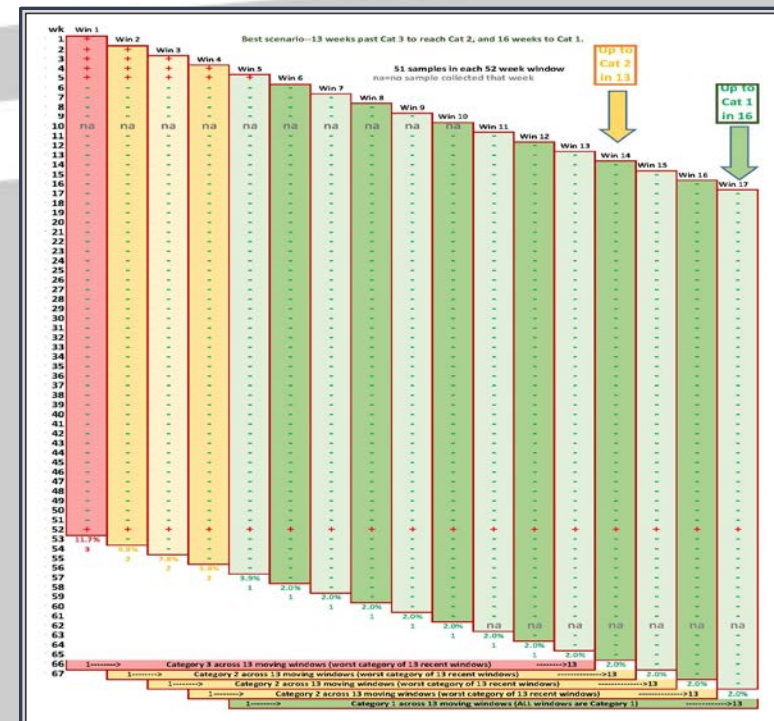**Let's look at an example.**

Category Examples

Objectives

In this section, we will show examples of how establishments improve category status over time, including:

- Review case scenarios on timelines for improving category status

- Review snapshots of category progression
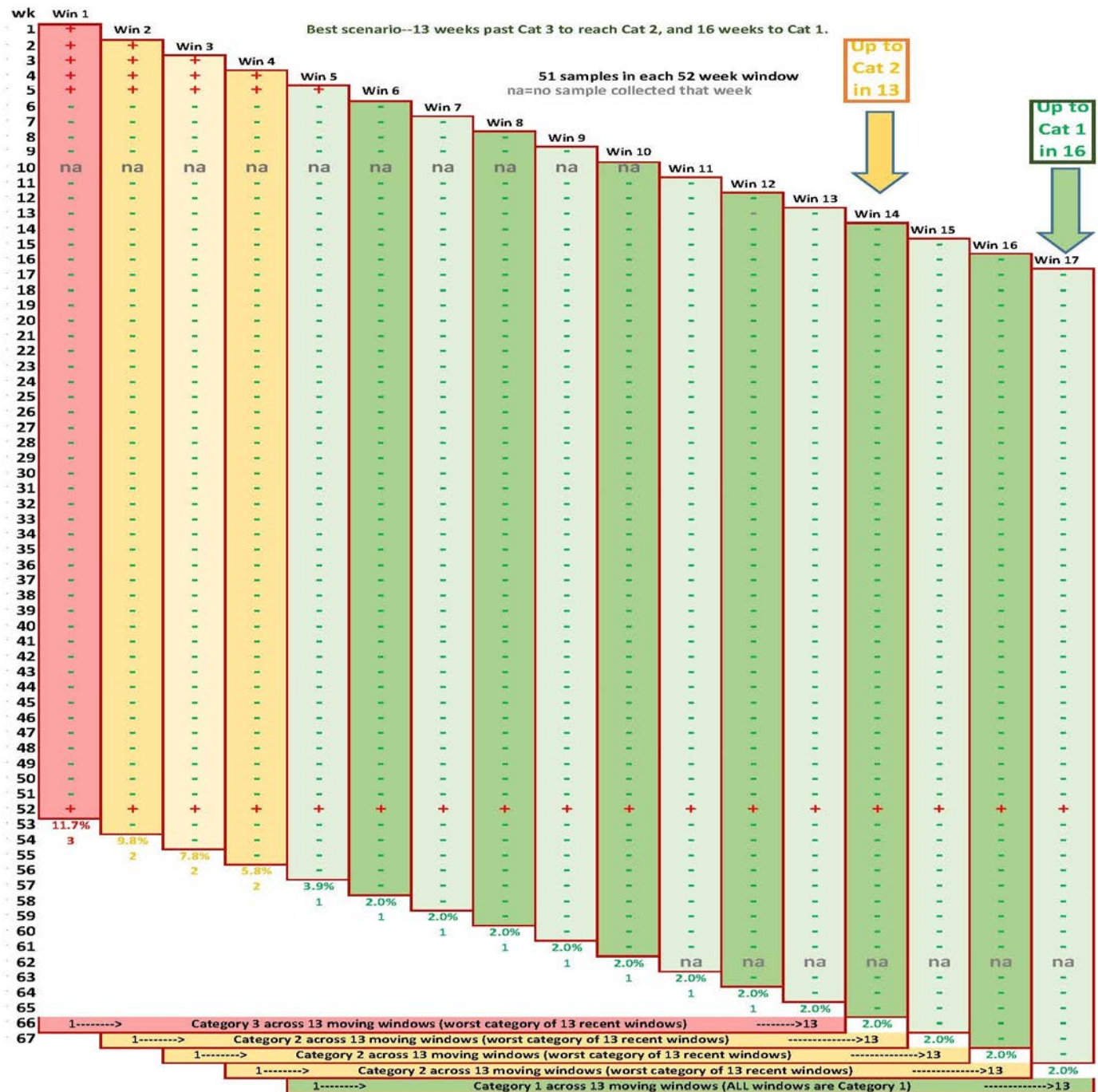
Time Spent in Category 3 Scenario

(Click to open example)

Best scenario--13 weeks past Cat 3 to reach Cat 2, and 16 weeks to Cat 1.

51 samples in each 52 week window
na=no sample collected that week

Up to Cat 2 in 13

Up to Cat 1 in 16
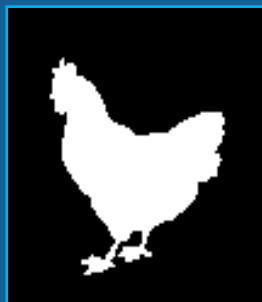
- ✓ 51 samples in every window.

- ✓ Effective corrective actions control the hazard after 5 consecutive positives; additional positive in week 52 crosses Category 3 threshold.

- ✓ **13 weeks in Category 3 before reaching Category 2.**
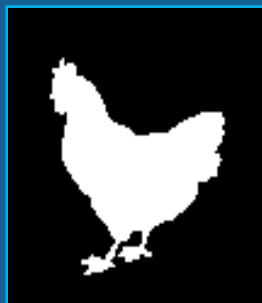
- ✓ **3 weeks in Category 2 before reaching Category 1.**

KEY:
Pink window is Category 3
Yellow windows are Category 2
Green windows are Category 1

Category 3 across 13 moving windows (worst category of 13 recent windows)
Category 2 across 13 moving windows (worst category of 13 recent windows)
Category 2 across 13 moving windows (worst category of 13 recent windows)
Category 2 across 13 moving windows (worst category of 13 recent windows)
Category 1 across 13 moving windows (ALL windows are Category 1)

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Impact of Follow-up Sampling

Without: 6 positives/52 samples= 11.5%

With: 6 positives/68 samples= 8.8%

(Click to open example)

- Increased sampling results from follow-up samples are reflected in a given window. Negative follow-up samples increase the denominator, which decreases the percent positive.

- For example, in the featured window:

  Without: 6 positives/52 samples= 11.5%

  With: 6 positives/68 samples= 8.8%

- These samples, taken as often as once per shift, are included in the window and therefore are an opportunity to reflect improvement sooner.

Same Window with and without follow-up sampling

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FSIS Category Communication

Objectives

In this section, we will review how FSIS communicates categorization, including:

- Establishment Profile Reports in PHIS

- FSIS quarterly letters

- Category status alerts in PHIS

- Public posting of category status to the FSIS webpage

FSIS Category Reports

PHIS Reports

- The Establishment Profile Report includes Category Status for poultry carcasses subject to FSIS performance standards for *Salmonella*.
- Available to the establishment through the industry access to PHIS.
- Updated weekly to reflect most recent completed windows.

Quarterly Letters

- Letters are mailed to establishment management, and contain the most recent category information for poultry carcasses subject to FSIS performance standards for *Salmonella.*

PHIS Category Alerts

FSIS will issue a PHIS alert to IPP when an establishment's category status has declined.

- **PHIS Category 3 Alert** – An alert will be sent out to FSIS inspection personnel within 3 business days* of an establishment moving into category 3.

*Establishment category assignments are performed approximately 10 days after the close of each moving window to allow the lab processing time for all applicable samples.

Website Category Posting

- Each establishment's category information is updated and posted monthly on the FSIS website.

- Establishment specific categories for *Salmonella* for poultry carcasses are updated monthly.

- Aggregate categories for *Salmonella* and each product are updated monthly.

FSIS Responses to Category Status

Actions Related to Category 3 Establishments

- FSIS will conduct a Public Health Risk Evaluation (PHRE), focusing on establishment's corrective actions and possibly resulting in a Food Safety Assessment (FSA).

- FSIS will collect follow up samples as frequently as once/shift.

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Going Forward

1) FSIS will start posting establishment specific categories for poultry carcasses on January 22, 2018.

2) FSIS continues to compute categories on a weekly basis.

3) The weekly calculations are available in PHIS reports.

4) The monthly calculations will be available on FSIS webpage.

5) FSIS intends to begin the web posting of category status relative to *Salmonella* for individual establishments that produce chicken parts and comminuted poultry products in June 2018.

END