

INSTRUCTIONS FOR USE

PASTILLNESS05

Background

PastIllness05.xls is meant to serve as a companion to the risk assessment model Products311 (described on previous pages). Recall that running Products311 is time-intensive, requiring several hours to achieve model stability. The creation of PastIllness05.xls came about from a desire to give FSIS policy makers a “real-time” decision-making tool.

In essence, the PastIllness spreadsheet sits “on top” of output generated from running the model Products311. Specifically, Products311 was run at 5,000 iterations for each of seven egg product categories at pasteurization scenarios ranging from 12 log₁₀ to 3 log₁₀ reduction of *Salmonella*. By using the PastIllness spreadsheet the user can examine different risk scenarios. By changing either the pasteurization level or the fractions or weights of each egg product, the user is able to see results in real time. This works because the spreadsheet simply draws previously generated values from the Products311 model.

Opening the model

- On the accompanying disk find an Excel file titled “Past Illness05.xls.”
- Without any other programs open on your computer, double click on the file
- You should now see a multi-colored spreadsheet

The screenshot shows the Microsoft Excel spreadsheet 'PastIllness05'. The spreadsheet is multi-colored and contains the following data:

Illnesses associated with distributions of lethality in different liquid egg products								
	White	Whole	Yolk	Whole 10% salt	Whole 10% sugar	Yolk 10% salt	Yolk 10% sugar	Total
Baseline values	-5	-5.9	-5.5	-9	-42	-7.2	-12.4	
Results using new values	7,125	4,764	1,914	1,101	0	30	0	14,934
Fractions (or weights) of product	0.169	0.456	0.043	0.127	0.127	0.031	0.047	
Percentages	16.9%	45.6%	4.3%	12.7%	12.7%	3.1%	4.7%	
Log reductions	1	1	1	1	1	1	1	
Weighted observations								

Additional information from the spreadsheet:

- Color Codes:** Table heading, Column heading, Row heading, Baseline values, User inputs (weights), Calculated values, New output.
- Using the results from the liquid egg products model to determine number of illnesses for different lethality scenarios:** Introduction: This calculates number of illnesses associated with different distributions of lethality. This spreadsheet can handle log reduction from -3.0 to -12. It uses the results of the liquid egg products. Additional log reductions are being generated. This current set started with all weights at the baseline values (log reductions than -12 are set at -12 which gives 0 illnesses).
- To use:**

The Summary Sheet

- The yellow box in the lower right presents a brief introduction and instructions for using the spreadsheet
 - Given above this box is a color-coded key to the spreadsheet

Color codes
Table heading
Column heading
Row heading
Baseline values
User inputs (weights) Darker green if entry
Calculated values
New output

- Rows 4 and 5 show the 7 types of egg products included in the model

The screenshot shows an Excel spreadsheet with the following data in rows 3-10:

Illnesses associated with distributions of lethality in different liquid egg products									
		Product							
		White	Whole	Yolk	Whole 10% salt	Whole 10% sugar	Yolk 10% salt	Yolk 10% sugar	Total
Baseline values		Log reductions							
		-5	-5.9	-5.5	-6	-42	-7.2	-12.4	
		Fractions of product							
		0.169	0.456	0.043	0.127	0.127	0.031	0.047	
Illnesses with given log reductions and fractions of product									

- Rows 6 and 7 show the baseline log reductions. These are the reductions predicted based on current FSIS time and temperature regulations
- Rows 8 and 9 show the fraction of egg product
 - For instance, egg white constitutes 16.9% of egg product consumption (cell C9)
- Rows 10 and 11 show the predicted number of illnesses given the baseline values for log reduction and fraction of product

2									
3		Illnesses associated with distributions of lethality in different liquid egg products							
4		Product							
5		White	Whole	Yolk	Whole 10% salt	Whole 10% sugar	Yolk 10% salt	Yolk 10% sugar	Total
6		Log reductions							
7		-5	-5.9	-5.5	-6	-42	-7.2	-12.4	
8		Fractions of product							
9	Baseline values	0.169	0.456	0.043	0.127	0.127	0.031	0.047	
10		Illnesses with given log reductions and fractions of product							
11		7,125	4,764	1,914	1,101	0	30	0	14,934
12	Results using new values	Illnesses with weighted log reductions and fractions of product							
13		7,125	4,764	1,914	1,101	0	30	0	14,934
14		Fractions (or weights) of product							
15		0.169	0.456	0.043	0.127	0.127	0.031	0.047	Using the determin
16	Percents	16.9%	45.6%	4.3%	12.7%	12.7%	3.1%	4.7%	

- Rows 12 and 13 show recomputed outputs based on entering new scenarios (see below)
- Row 15 is for user input. You may change the egg product fraction
- Rows 17 and 18 show the number of entries for each egg product column (see below)

11		7,125	4,764	1,914	1,101	0	30	0	14,934
12	Results using new values	Illnesses with weighted log reductions and fractions of product							
13		7,125	4,764	1,914	1,101	0	30	0	14,934
14		Fractions (or weights) of product							
15		0.169	0.456	0.043	0.127	0.127	0.031	0.047	Using the determin
16	Percents	16.9%	45.6%	4.3%	12.7%	12.7%	3.1%	4.7%	
17	Log reductions	Number of entries in each column							
18		1	1	1	1	1	1	1	Introduc
19		Weighted observations							

- Rows 20 through 110 show log reduction values from -12 log₁₀ to -3log₁₀. Similar to those for fraction of egg product, these values may be changed by the user

Using the spreadsheet

- Values in the green cells in row 15 and values in the light green cells in rows 20 through 110 may be changed by the user
 - To do so, click in the any of the cells and enter a value
- The fraction of egg product consumed may be changed by entering values in any of the seven cells from cell C15 to cell I15
 - For example, enter “0.25” into cell C15 and click out of the cell

- cell C13 now shows a value of 9,750 illnesses from egg white and
- cell J13 now shows a new total of 16,974 illnesses
- By entering a 1 into any of the light green cells you are indicating that 100% of the particular egg product is pasteurized at the level you have selected.

	reductions	Weighted observations			
19					
20	-12			1	1
21	-11.9				
22	-11.8				
23	-11.7				
24	-11.6				
25	-11.5				
26	-11.4				
27	-11.3				

- If there are no entries in a column the number of illnesses appears as an error, "DIV/0!"
- You may also weight the product by the frequency the log reduction occurs. For example, if half of Whole Egg product is pasteurized at -8 logs and half is pasteurized at -6 logs, put a 0.5 in column Whole and row -8 and 0.5 in column Whole and row -6. This may also be done by entering a 1 in each of the cells. The number of illnesses for Whole should then appear as 1,920.
 - You do not need to figure out the percentages if you have weights. For instance, assume there is 3 times as much Yolk pasteurized at -8.4 then at -6.2. Put a 1 in column Yolk and row -6.2 and a 3 in column Yolk and row -8.4. The number of illnesses for Yolk should then appear as 108.

The ResultsAndWeights Sheet

- This worksheet holds a set of outputs that resulted from simulating 3.0 to 9.0 log reductions due to pasteurization for each of the seven modeled egg products.
- These outputs were each the result of 5000 iterations.
- Because the relationship between log reductions at pasteurization and human illness above 9 is linear, outputs above 9.0 log reductions were estimated using the linear relationship.
- This worksheet also normalizes the values in the green cells in the Summary sheet. This ensures that regardless of how these cells are weighted, all product will sum to 100%.