

INSTRUCTIONS FOR USE

Shell Egg Model 18

Background

FSIS conducted risk assessments for *Salmonella* Enteritidis in shell eggs and *Salmonella* spp. in liquid egg products. Two models were created as part of the assessments, one for the shell eggs and one for liquid egg products. The instructions below explain how to run the model created for shell eggs. The model is included in an Excel workbook titled “ShellEggModel18.xls.”

In brief, the shell egg model estimates illness from *Salmonella* Enteritidis in shell eggs. It does so by first estimating the number of SE cells in eggs. It follows the growth and decline of SE during storage, transportation, pasteurization, and cooking. Given consumption of SE bacteria, a dose response function estimates the frequency of illness.

Opening the model

- On the accompanying disk find an Excel file titled “ShellEggModel18.xls.”
- Without any other programs open on your computer, double click on the file
- You should be given a box with three options, i.e. “Disable Macros,” “Enable Macros,” and “More Info” – Select “Enable Macros”



- If you do not see this message on your screen, the security settings in your version of Excel are likely too high. To change this, in Excel select “Tools” followed by “Macro” followed by “Security.” Select the “Medium” option and click “OK.”

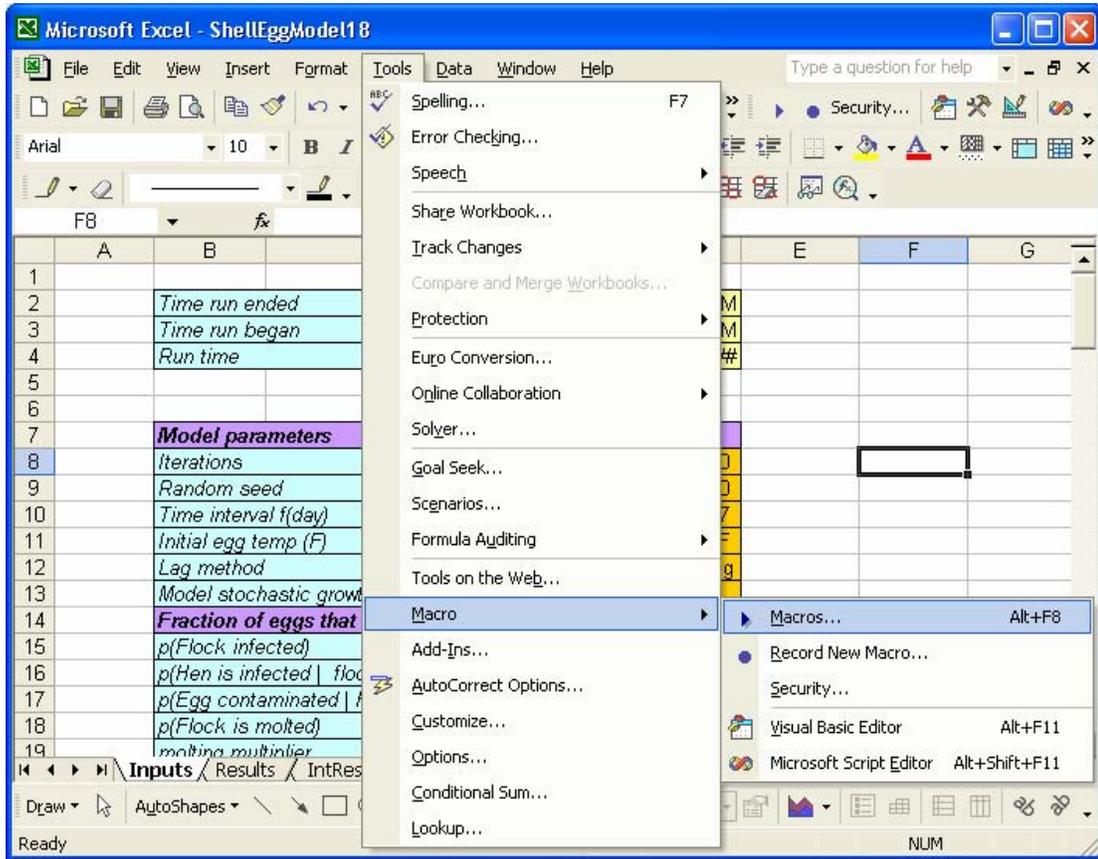


The model is written in Visual Basic for Applications. Microsoft Excel worksheets hold the parameters that are read into the model and results generated by the model. There are only two worksheets needed for the baseline model: Inputs and Results. The other worksheets hold alternative inputs or results of specific types of model runs. The picture to the right shows a portion of the inputs worksheet. The baseline model results were generated with the inputs shown here.

Explanations of the various inputs and outputs are found in the risk assessment report and accompanying annexes.

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6			
7	Model parameters		
8	Iterations		50,000
9	Random seed		7.00
10	Time interval f(day)		0.041667
11	Initial egg temp (F)		104.0 F
12	Lag method		AccumulateLag
13	Model stochastic growth		TRUE
14	Fraction of eggs that are contaminated		
15	p(Flock infected)		20%
16	p(Hen is infected flock is infected)		1.48%
17	p(Egg contaminated hen infected, not molted)		9%
18	p(Flock is molted)		9%
19	moltng multiplier		2.86
20	p(Flock is not molted)		91%
21	p(Egg contaminated hen infected, not molted)		0.023%
22	p(Egg contaminated hen infected, molted)		0.007%

Model simulations are initiated by calling an Excel macro. From the Tools menu, select Macro, then Macros.



The available macros are shown in the picture to the right. ModelEgg generates the baseline model. The other macros replace certain parameters in the Inputs worksheet and store the outputs in various other spreadsheets.

