

### Example of a completed *E. coli* inactivation predictor

[illegible]

## Instructions

1. Download and open the *E. coli* inactivation model/predictor - [www.mla.com.au/globalassets/mla-corporate/research-and-development/documents/e.coli-inactivation-model-v-2.2b-.xlsx](http://www.mla.com.au/globalassets/mla-corporate/research-and-development/documents/e.coli-inactivation-model-v-2.2b-.xlsx)

This page will appear.

Click on the 'Go to: "Advanced" Calculations' button.

**INSTRUCTIONS:** This is the "quick" calculator. You simply need to enter the time and temperature of your fermentation, and the time and temperature of your maturation conditions, and the expected log kill of *E. coli* will be automatically calculated.

Use Celsius temperatures and type in the appropriate box.

Type the fermentation time and maturation time in EITHER days OR hours (your choice), into the appropriate boxes. The fermentation time to use is the time from when the product gets to the desired fermentation temperature, or when the pH of the batter falls below 5.

Use the "TAB" key to move between the boxes to enter the times and temperatures.

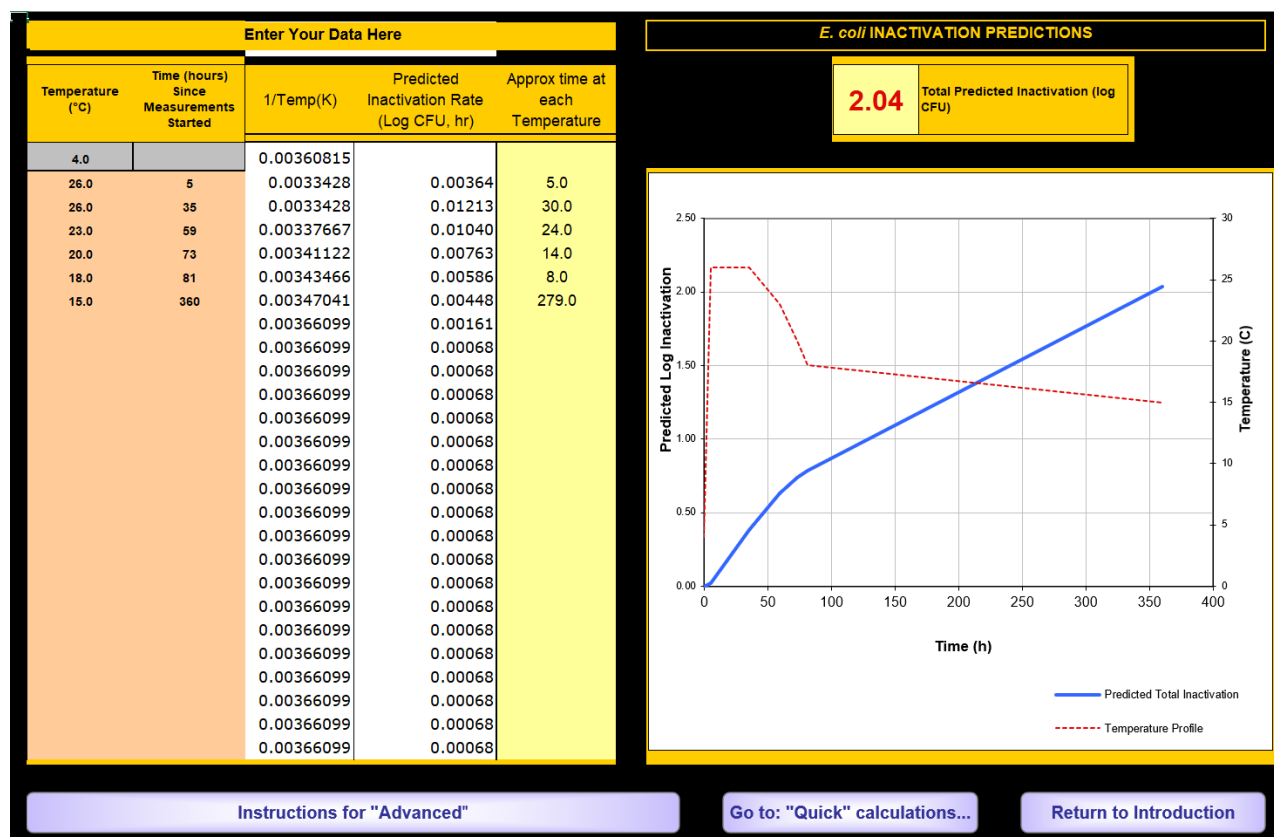
	Temperature (°C)	Time (hours) (days)	Time final	Rate (logCFU.h-1)	Log Kill
Fermentation:	25	5	0 120	0.0110	1.32
Maturation:	14	11	0 11	0.0034	0.04
Total Log Kill					1.35

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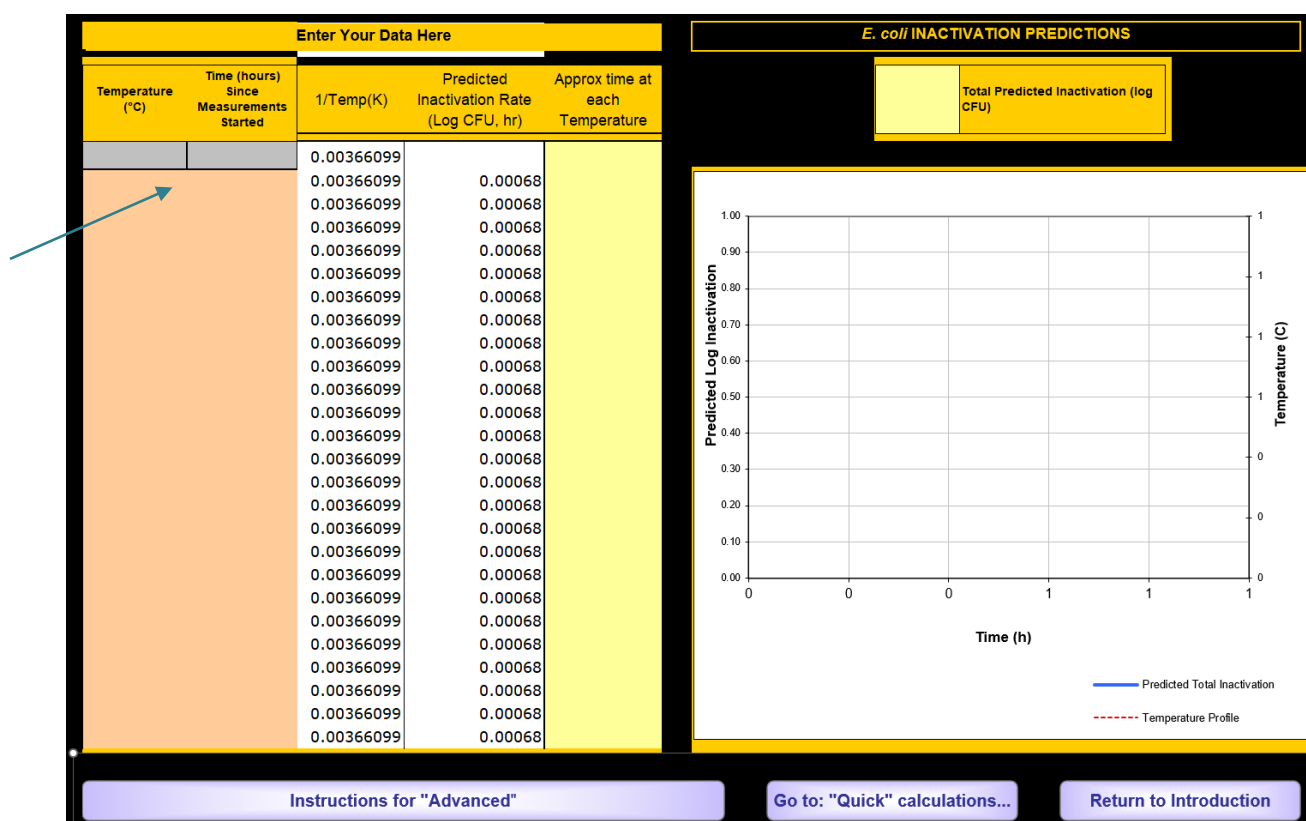
Note: The 'quick' calculator option only allows entry of one temperature and time for fermentation and one temperature and time for maturation.

For most processes, this is not suitable for use.

2. The *E. coli* inactivation Predictions page will appear.



3. Delete all values in the columns under 'Enter your data here'. Values may need to be deleted one cell at a time.



4. Enter the starting temperature as 5°C or the temperature of your batter.

[illegible]

5. Enter the temperatures and times for each step of the production process.

An example on how to fill in the calculator is given over the next few pages.

It is recommended to practise using the calculator with the example given before using it with the production process, to help understand how to enter the time and temperature correctly.

The calculator predicts the *E. coli* inactivation during fermentation, smoking (if applicable) and maturation/drying.

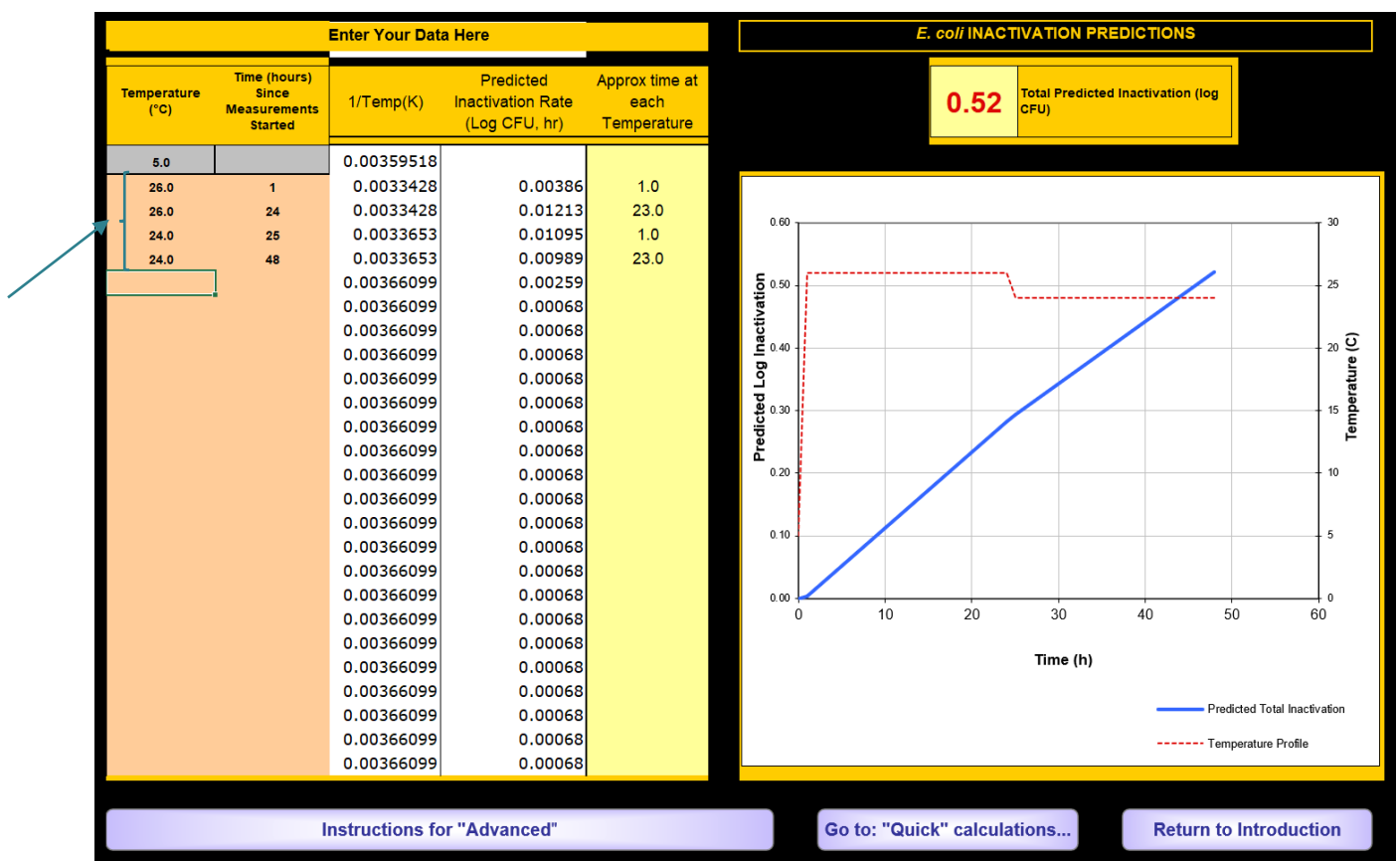
### Important notes:

- Every time there is a change in the temperature, add one (1) hour to take into account of the time taken for the meat to reach that temperature.
- The one (1) hour added must be deducted from the total time the product is at that temperature.
- As a result, there will be two (2) entries per temperature.
- The time entered is for the time since the measurements started (accumulative).
- The total time at the end of the entry must be equal to your fermentation time + smoking time (if applicable) + maturation time.

5a. Enter the fermentation temperature and time

*Example of the fermentation process recorded in the pro forma.*

5a	Fermentation time and temperature profile	Start temperature	26°C for 24 hours
		Temperature 2 (if applicable)	24°C for 24 hours
		Total fermentation time	48 hours

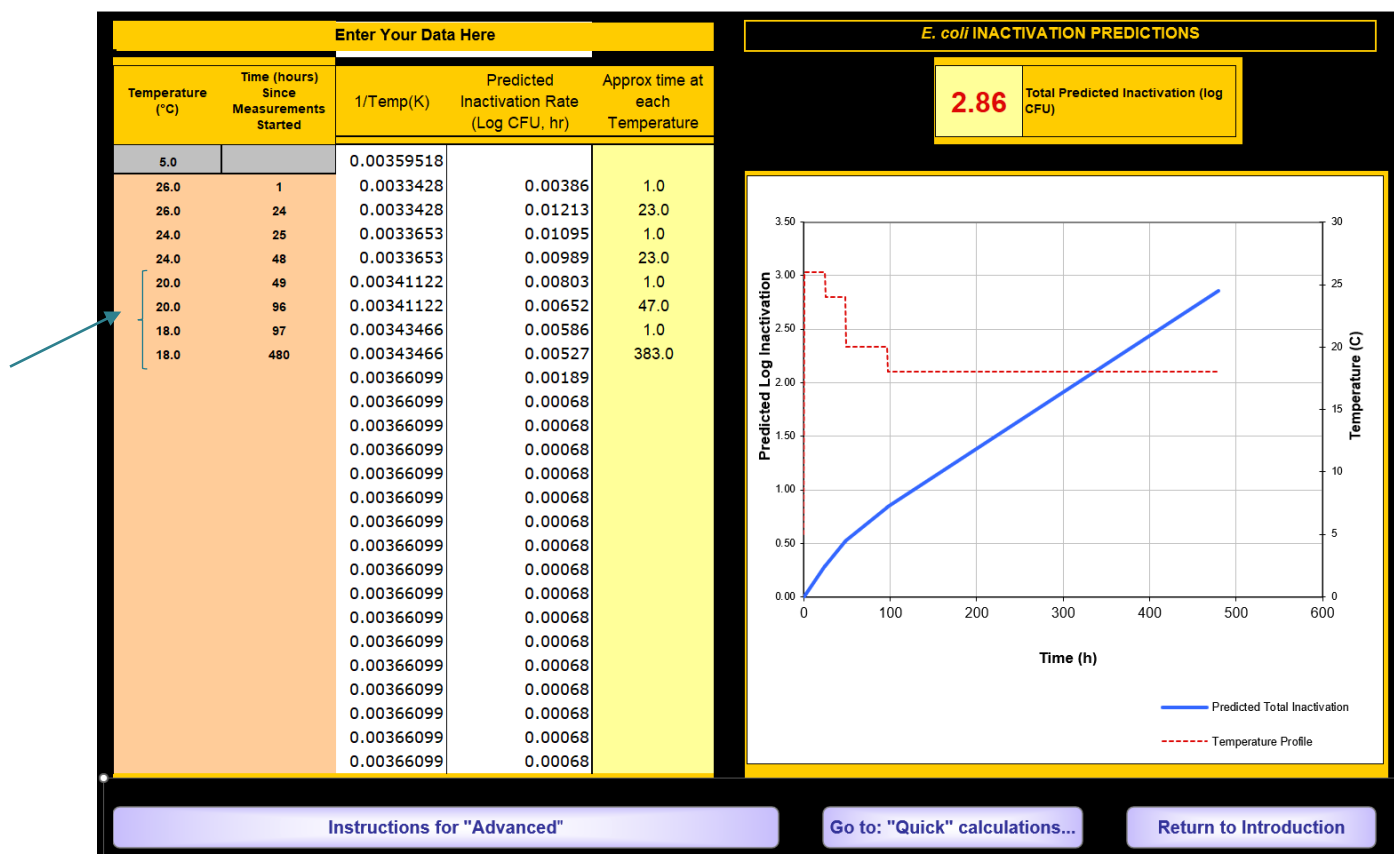


Enter the smoking time and temperature (if applicable) underneath the fermentation temperature and time.

5b. Enter the maturation/drying temperature and time underneath the fermentation (or smoking) temperature and time.

*Example of the maturation process recorded in the pro forma*

6a	Maturation time and temperature profile	Temperature 1	20°C for 48 hours
		Temperature 2 (if applicable)	18°C for 384 hours
		<b>Total minimum maturation time</b>	<b>432 hours</b>



6. Check that you have entered all information correctly. The last entry of the time value must be equal to the total time taken from the beginning of the fermentation.

Total time = fermentation time + smoking time + maturation/drying time

[In this example, total time = 48 hours + 0 hours + 432 hours = 480 hours]

7. The 'Total Predicted Inactivation (log CFU) must be 2.00 or more.

If you don't achieve 2.00, try to change your process so it reaches 2.00 or more.

For example, increase the temperature or extend the time of fermentation and/or maturation.

8. Once all the information from the production process is entered in the calculator, save a copy of the file. Saving the file using product name and date is fine. Please submit a copy of this file with your pro forma.

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