APPENDIX 2 - *E. COLI* INACTIVATION PREDICTOR GUIDE

Completing *E. coli* inactivation model summary

Accumulative time during the process – from the beginning of fermentation to the end of maturation

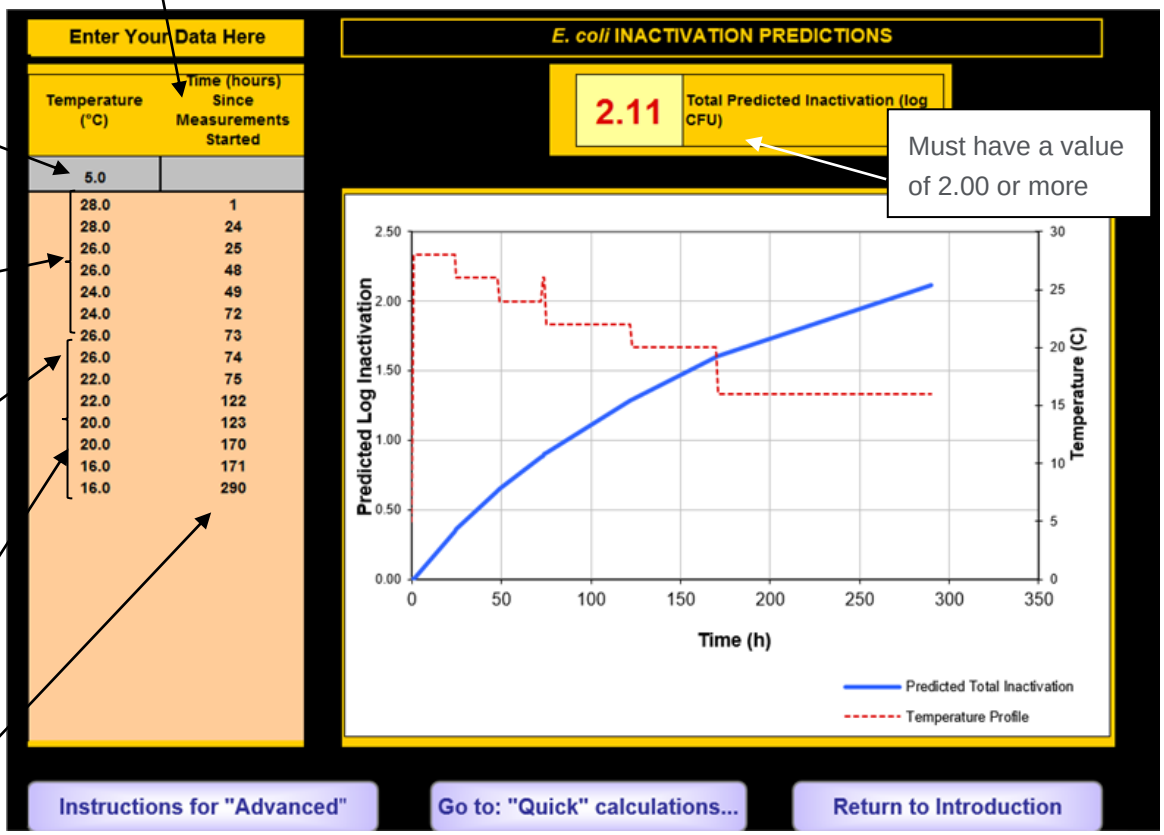
Starting temperature is 5°C

Fermentation temperature and time (hours) at that temperature

Smoking temperature and time

Maturation/drying temperature and time at that temperature

Add one (1) hour every time there's a change in temperature. The one (1) hour must be deducted from the total time the product is at that temperature



Must have a value of 2.00 or more

Instructions

1. Open the *E. coli* inactivation model/calculator - http://www.foodsafetycentre.com.au/fermenter.php

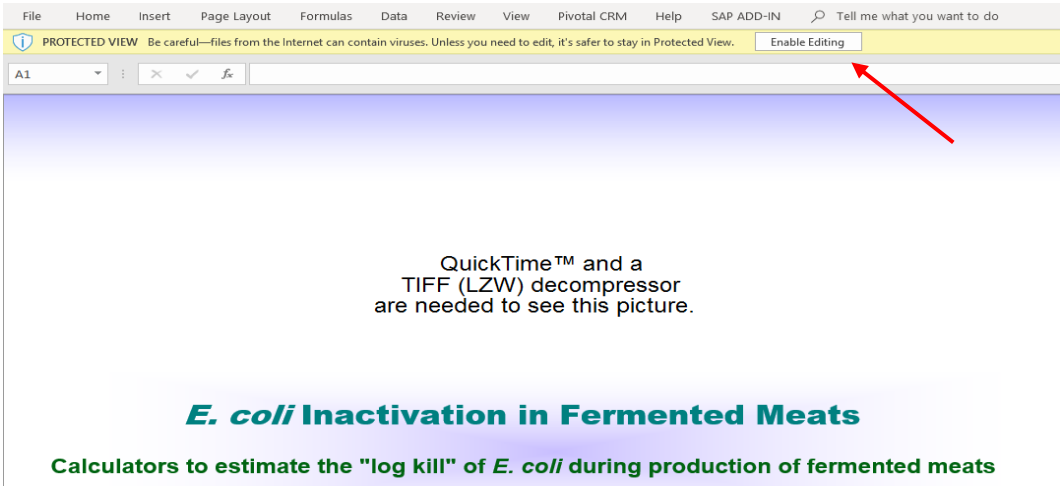
   NOTE: You need to have an Excel program on your computer to run the model/calculator

2. Click on the 'Download the *E. coli* Inactivation Model Excel file (916 KB)' link found at the bottom of the screen.

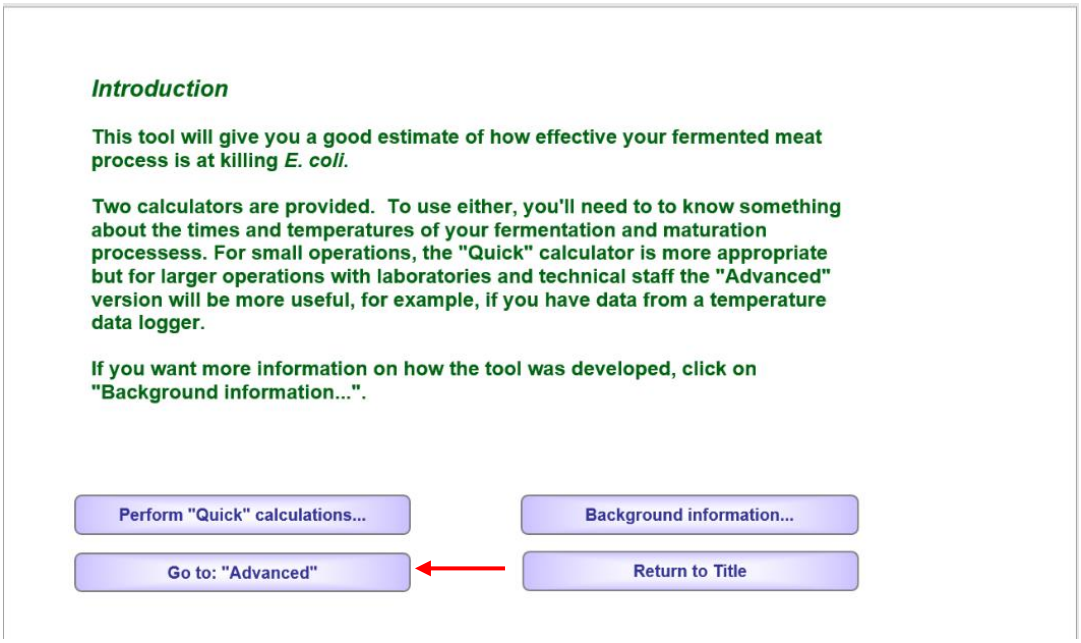
3. This will run an Excel program, with the screen pictured below. Press ‘Click to continue’

NOTE: If you can’t press the ‘Click to Continue’ button, check the spreadsheet is not in ‘PROTECTED VIEW’.

Disable protected view by pressing the ‘Enable editing’ button as shown below.



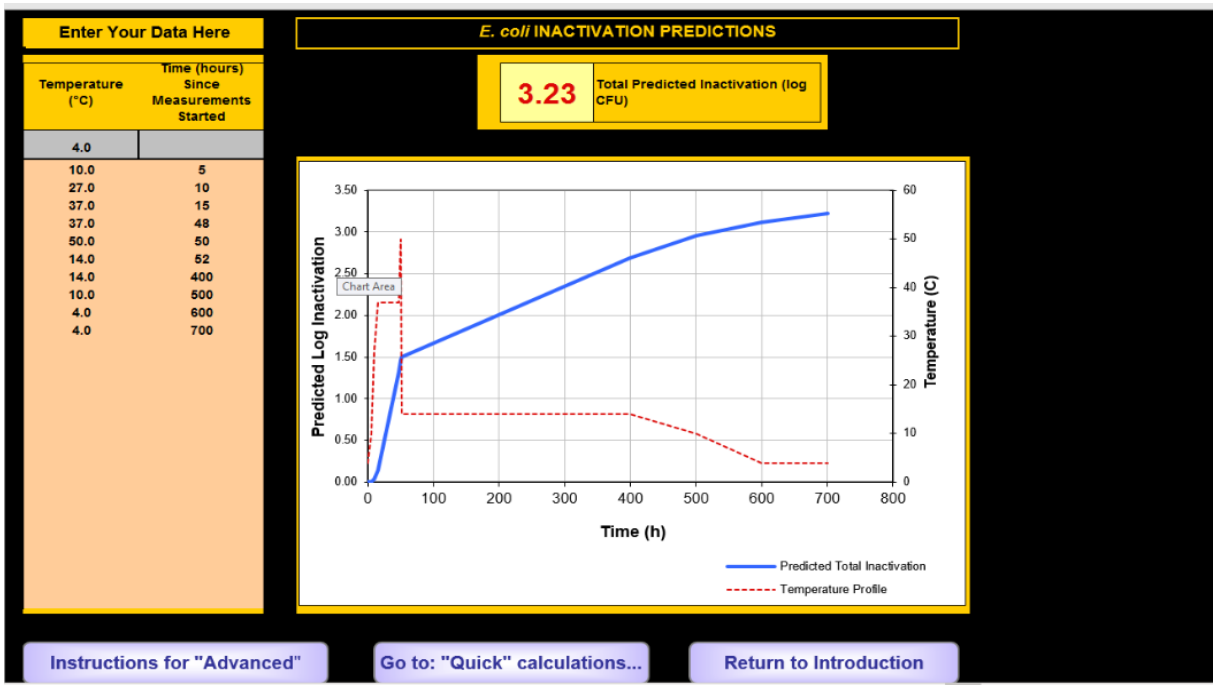
4. The introduction page will now appear.
   Press the ‘Go to: “Advanced”’ button.



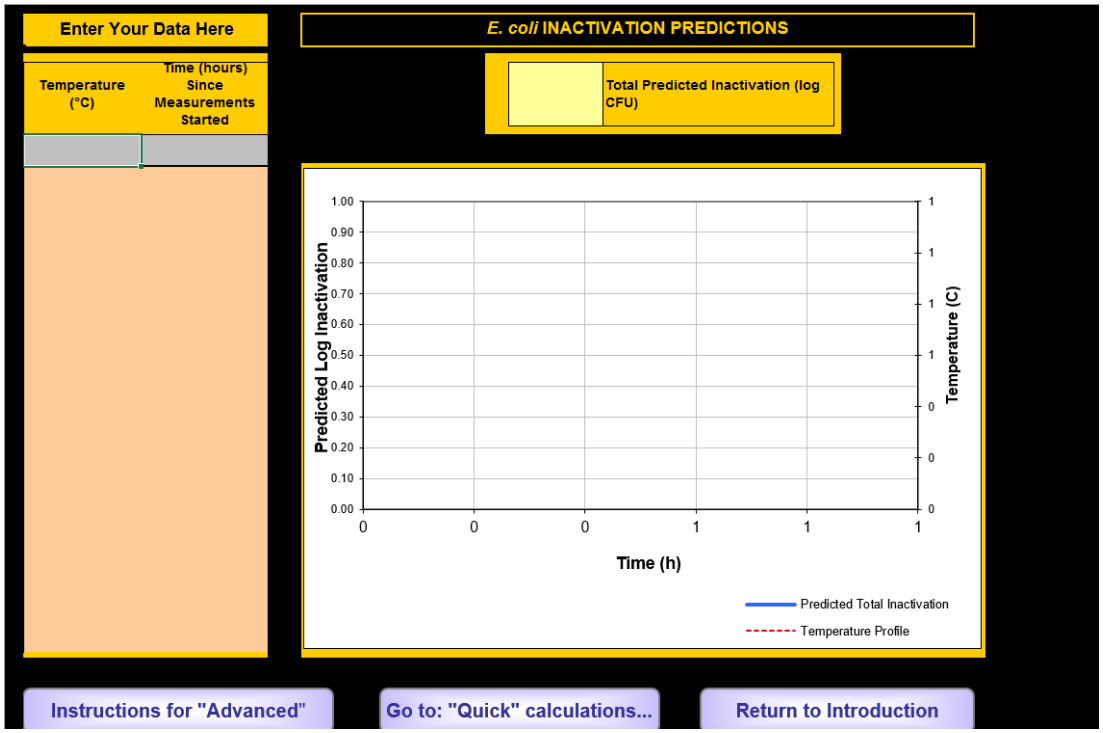
NOTE: The ‘Perform “Quick” calculations’ option only allows entry of one temperature and time for fermentation and one temperature and time for maturation.

For most processes, this is not suitable for use.

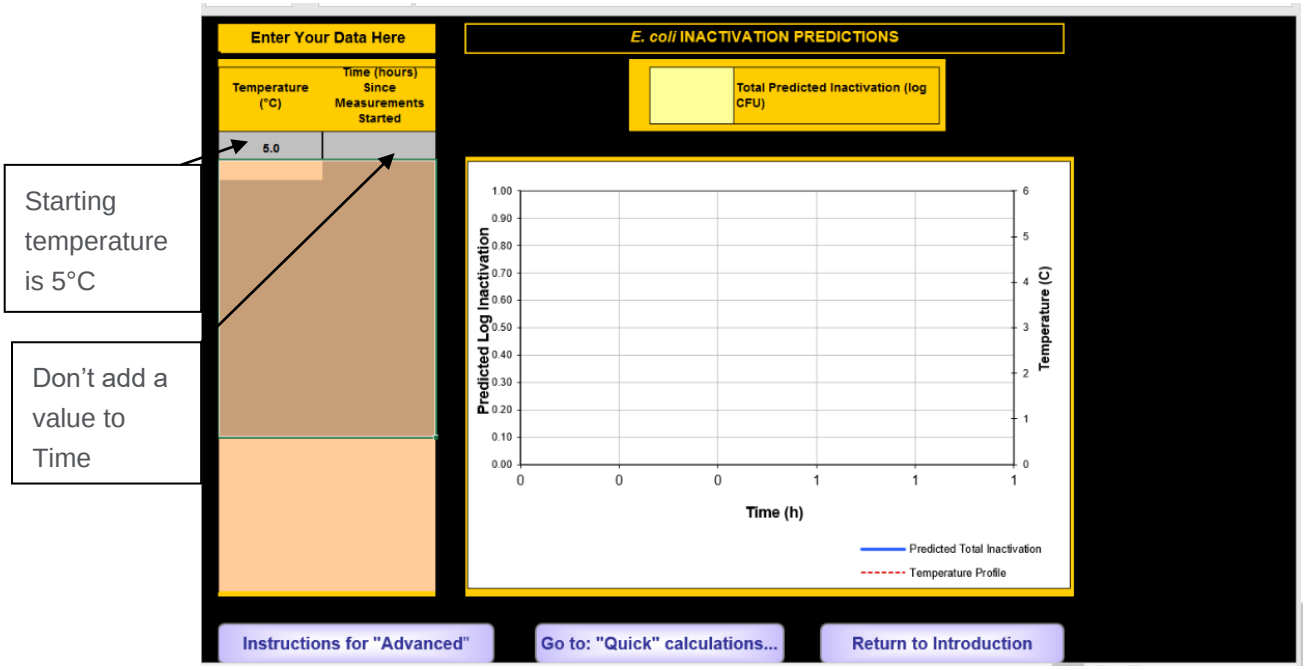
5. The *E. coli* inactivation predictions screen will now appear.



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



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



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

> An example of how to fill in the calculator is given over the next few pages.
>
> Practice use of the calculator with this example before using it in the production process, to help understand how to enter the time and temperature correctly.

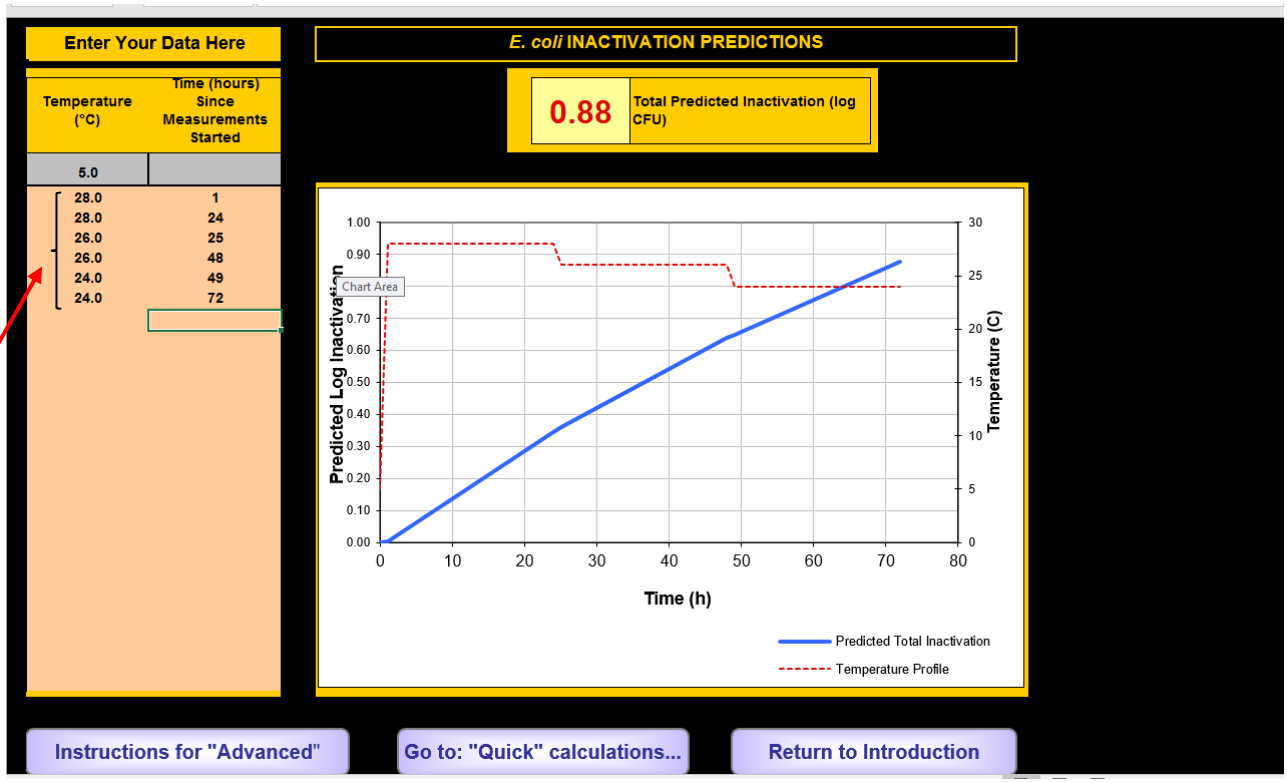
The calculator predicts the *E. coli* inactivation during fermentation, smoking and maturation/drying.

> **Important:**
>
> - Every time there is a change in the temperature, add one (1) hour to take into account the time taken for the meat to reach that temperature.
> - Every 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.

8a. Enter the fermentation temperature and time.

Example of the fermentation process recorded in the pro forma

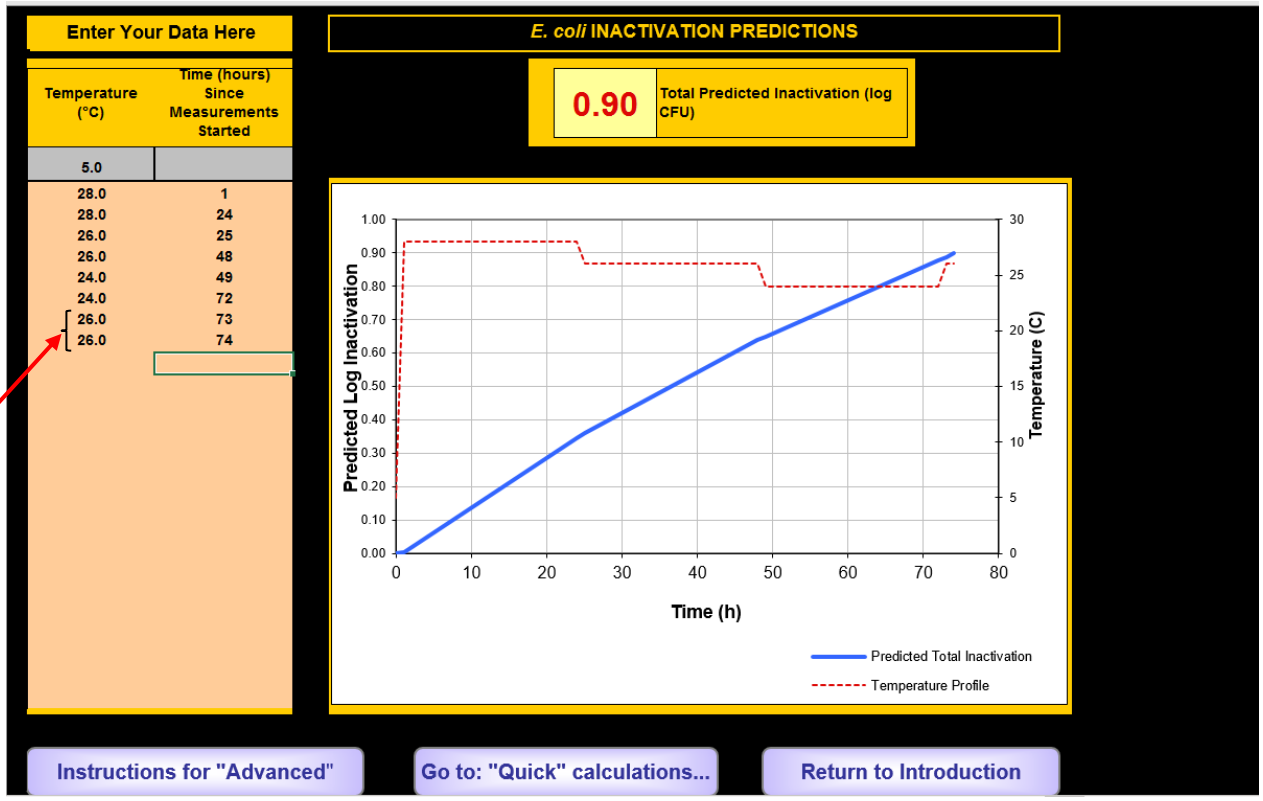
5a	Fermentation time and temperature profile	Start temperature	28°C for 24 hrs
		Temperature 2 *(if applicable)*	26°C for 24 hrs
		Temperature 3 *(if applicable)*	24°C for 24 hrs
		Total fermentation time	**72 hrs**



8b. Enter the smoking temperature and time (if applicable) underneath the fermentation temperature and time.

Example of the smoking process recorded in the pro forma

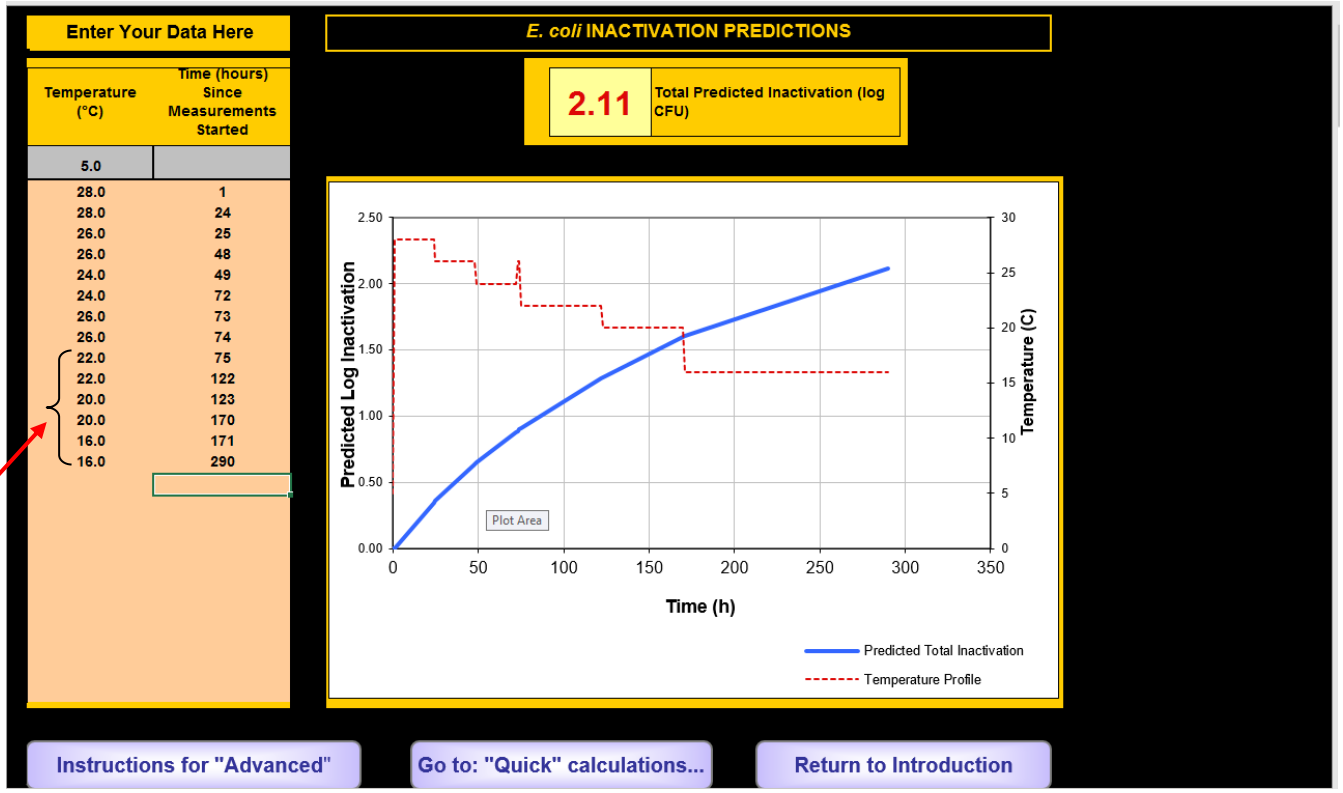
7a	Smoking time and temperature profile *(if applicable)*	Temperature 1	26°C for 2 hrs
		Temperature 2 *(if applicable)*	°C for hrs
	Total smoking time		**2 hrs**



8c. Enter the maturation temperature and time underneath the fermentation or smoking temperature and time.

Example of the maturation process recorded in the pro forma

7a	Maturation time and temperature profile	Temperature 1	22°C for 48 hrs
		Temperature 2 *(if applicable)*	20°C for 48 hrs
		Temperature 3 *(if applicable)*	16°C for 120 hrs
	Total minimum maturation time		**216 hrs** **or** **9 days**



9. 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.

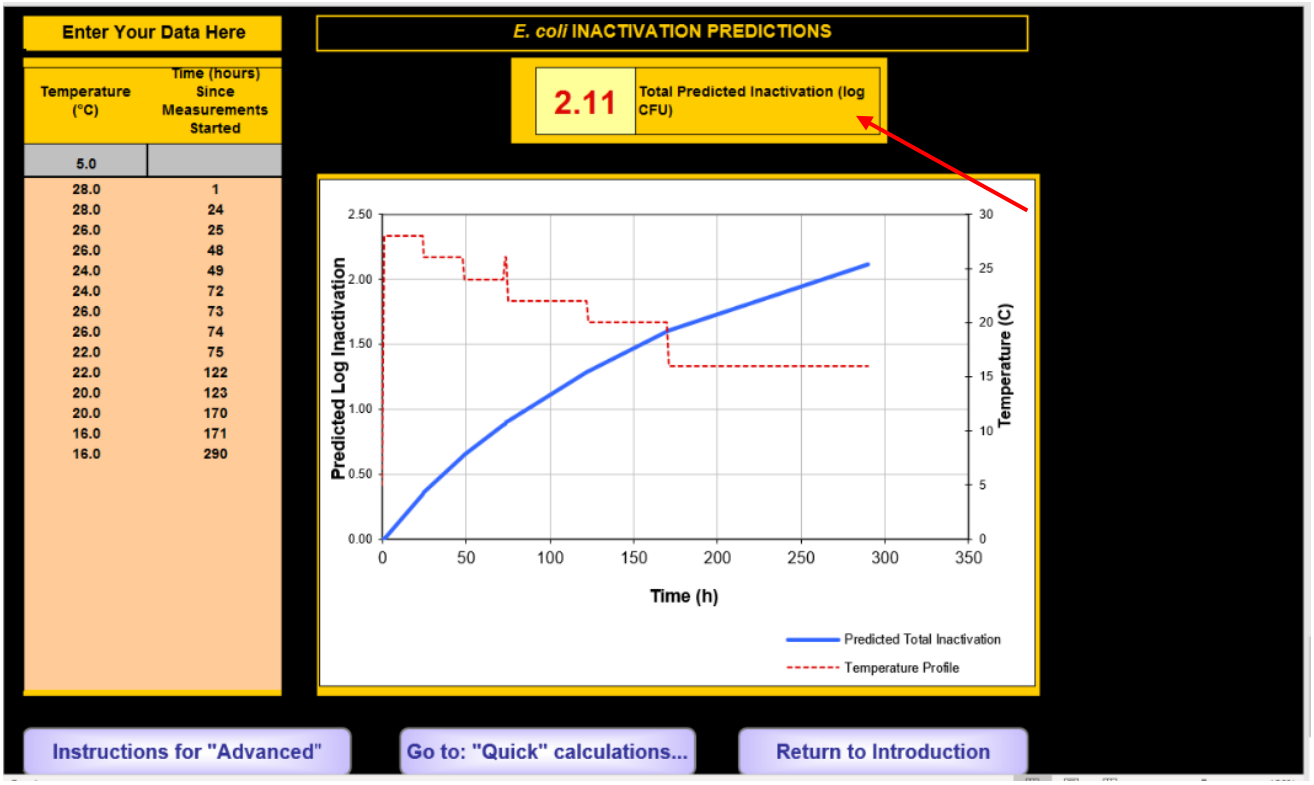
   Total time = fermentation time + smoking time + maturation/drying time

   [In this example, total time = 72 hours + 2 hours + 216 hours = 290 hours]

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

    If not, 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.

> If changing the time or temperature of the production process, check the data is also changed in the calculator.



11. 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.

About the NSW Food Authority: The NSW Food Authority is the government organisation that helps ensure NSW food is safe and correctly labelled. It works with consumers, industry and other government organisations to minimise food poisoning by providing information about and regulating the safe production, storage, transport, promotion and preparation of food.

Note: This information is a general summary and cannot cover all situations. Food businesses are required to comply with all of the provisions of the Food Standards Code and the *Food Act 2003* (NSW).