

AGEC 622
o8_parameter_fitting Exercises
Due before the beginning of the next class

- Complete the exercises in the provided notebook “o8_exercises_LASTNAME_FIRSTNAME.xlsx”.
- **Rename your file, replacing “LASTNAME_FIRSTNAME” with your actual names.**
- If there is more than one question, note that each will have its own tab in the workbook.
- **Work vertically down the sheet** within your notebook. Separate the individual parts of the question(s) (a, b, c, . . .) using dividing rows like the blue example dividers in the file.
- Submit this homework by emailing your xlsx file to henry@tamu.edu, **with the subject “AGEC 622 exercises o8”**.

1) **Question 1**

The overall objective of this question is to repeat the analysis from the o7_exercises, but with careful specification of the probability distributions that will be used for stochastic draws. You will use the CDFDEV function in Simetar to determine the best parametric distribution for each stochastic variable, and use hypothesis tests for the means and variances of the simulated values to determine if that best parametric distribution adequately represents the variable. If you do not use the parametric distribution with the lowest CDFDEV value, describe your reasoning for doing so. If the best parametric distribution does not adequately represent the variable, use an empirical distribution.

- a) **Build a model for the crop price.** Repeat step a) from the o7_exercises, but use the most appropriate probability distribution for drawing random residuals/errors/innovations. In the process of doing this, you will generate a “SimData” sheet in your workbook. Rename this to “SimData-a” so that it is not corrupted by the steps below.
- b) **Build a model for the crop yield.** Repeat step b) from the o7_exercises, but use the most appropriate probability distribution for drawing random residuals/errors/innovations. Rename the resulting “SimData” sheet to “SimData-b”
- c) **Build a model the gasoline price.** Repeat step c) from the o7_exercises, but use the most appropriate probability distribution for drawing random residuals/errors/innovations. Rename the resulting “SimData” sheet to “SimData-c”
- d) **Build a model for variable cost (VC).** Repeat step d) from the o7_exercises, but use the most appropriate probability distribution for drawing random residuals/errors/innovations. Rename the resulting “SimData” sheet to “SimData-d”
- e) **Calculate financial variables for the enterprise.** Calculate NR and ending cash (beginning cash + NR) for each year for 2019 through 2023, following the approach and parameters for this purpose from the o7_exercises.
- f) **Simulate NR and ending cash.**
Determine the following values:
 - Expected ending (2023) cash
 - The probability ending (2023) cash is less than \$0
 - The probability ending (2023) cash is less than \$100,000
- g) **Interpret.**
 - What differences in the results do you find?
 - Do you have more confidence in these results or those from the o7_exercises?
 - What problems, if any, do you see with the revised model/analysis?