

AGEC622 - Agribusiness Analysis and Forecasting

01_intro Exercises

- Complete the exercises in the provided notebook “01 exercises.xlsx”.
- 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 your completed .xlsx file via Canvas.

Question 1.

- Plot the soybean yield.** Plot the soybean yield over time with a simple line graph.
- Soybean yield trend regression.** Regress the soybean yield on the year variable using the “Multiple Regression” tool. Select the options to plot “Residuals” and “Observed & Predicted”
- Soybean yield deterministic forecasts.** Calculate conditional mean forecasts for the soybean yield for 2022, 2023, and 2024.
- Stochastic forecasts.** Assuming the random component of the soybean yield is normally distributed, simulate the soybean yield for 2019 through 2021. After you run the simulation, rename the output sheet from “SimData” to “SimData Q1d”
- PDF.** Plot a probability density function for the simulated yield for 2022.
- Quadratic trend forecasts.** Repeat steps b) through d) using a model with both a $YEAR$ variable and a $YEAR^2$ variable on the right hand side:

$$YIELD_t = \beta_0 + \beta_1 YEAR + \beta_2 YEAR^2 + e_t$$

- Interpret.** State which model you think is better and support your statement.