AGEC 622
02_structural_models Exercises
Due before the beginning of class 03

- Complete the exercises in the provided notebook "02_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 02"**.

1) Question 1

a) **Estimate a regression model for wheat planted acres.**

$$PA_t = f\left(PA_{t-1}, PRICE_{wheat,t-1}, PRICE_{soybeans,t-1}\right)$$

b) **Estimate a regression model for the wheat yield.** Note that the data here are yield per *harvested* acre.

$$Y_t = f\left(YEAR_t\right)$$

c) **Estimate a regression model for wheat harvested acres.**

$$HA_t = f\left(PA_t\right)$$

d) **Estimate a regression model for wheat imports.**

$$IMP_t = f\left(YEAR_t, PRICE_{wheat,t-1}\right)$$

e) **Produce stochastic forecasts.** Produce stochastic forecasts for variables below. For each variable that was a dependent variable in the regressions above, specify an appropriate normally distributed stochastic deviation. For some other variables, you will need to specify an appropriate identity.

- Wheat planted acres
- Wheat Yield
- Wheat harvested acres
- Wheat imports
- Wheat production
- Wheat total supply

f) **Create a PDF for 2019 wheat total supply.**

g) **Interpret.** In the regression in step a), are there any variables that you might leave out? Justify your answer. Consider both statistical significance and economic theory motivations.