

## Agronomy 526 Homework

**Due: 3/24/22**

1. The following data are from a greenhouse experiment designed to determine if root weight differed among three wheat varieties grown in pots. Because of poor and inconsistent germination, the number of plants per pot varied. The experimental design was a completely random one-way ANOVA with six replications (pots) per variety.

	Variety					
	1		2		3	
	Root Wt.	# Plants	Root Wt.	# Plants	Root Wt.	# Plants
<b>Pot</b>						
1	0.14	6	0.11	8	0.13	4
2	0.16	4	0.20	5	0.15	3
3	0.15	6	0.23	4	0.11	4
4	0.20	4	0.21	5	0.11	4
5	0.19	4	0.09	7	0.10	5
6	0.07	9	0.31	3	0.15	3

- a. It is reasonable to expect that root weight or mass might be affected by the number of plants per pot. Perform a linear regression of root weight on number of plants per pot to determine if such a relationship exists.
  - b. Plot root weight as a function of number of plants.
  - c. Conduct an ANOVA to determine if the number of plants per pots is independent of variety.
  - d. Perform an ANOVA to determine if root weight is affected by variety.
  - e. Conduct an ANCOVA to determine if root weight is affected by variety using number of plants as a covariate.
  - f. Compare the adjusted means of the three varieties.
  - g. Interpret and compare the results of d and e.
- \* turn in your SAS program as well as output