PlSc 724 - HOMEWORK #4

1. Given the following set of yield data (Mg/ha) for barley treated with different levels of nitrogen fertilizer:

	Treatment (kg N/ha)											
	0			50			100			150		
	Replicate			Replicate			Replicate			Replicate		
Sam	1	2	3	1	2	3	1	2	3	1	2	3
1	2.3	1.3	1.7	3.9	2.9	3	5.5	5.9	5.4	7.0	6.4	5.6
2	1.9	1.5	2.3	4.0	3.5	3.4	5.2	5.7	5.3	7.1	6.9	6.0
3	2.0	1.2	1.2	3.5	3.3	4.3	5.6	5.4	5.9	7.2	6.3	6.2

a. Complete the ANOVA and perform the F-test at the 95 and 99% levels of confidence using the appropriate error term.

b. Calculate the coefficient of variation.

c. Calculate the LSD and Tukey's statistic (T_α) values for α=0.05.

d. If the F-test for treatments is significant, indicate what means are not significantly different using lower case letters. Do this using the LSD- and T_α -values for α=0.05.

2. Given the following set of yield data (Mg/ha) for barley treated with different levels of nitrogen fertilizer:

	Treatment (kg N/ha)											
	0			50			100			150		
	Replicate			Replicate			Replicate			Replicate		
Sam	1	2	3	1	2	3	1	2	3	1	2	3
1	2.3	1.3	1.7	3.9	2.9	3	5.5	5.9	5.4	7.0	6.4	5.6
2	1.9	1.5			3.5	3.4	5.2	5.7	5.3	7.1	6.9	6.0
3		1.2				4.3			5.9	7.2	6.3	6.2

a. Complete the ANOVA and perform the F-test at the 95 and 99% levels of confidence using the appropriate error term.

b. Calculate the coefficient of variation.

c. Calculate the LSD- and T_α values for α=0.05. The T_α value will be calculated using the Tukey-Kramer procedure.

d. If the F-test for treatments is significant, indicate what means are not significantly different using lower case letters. Do this using the LSD-value and T_α value (calculated using the Tukey-Kramer procedure) for α=0.05.