

Agronomy 526 Homework

Due: 3/29/22

1. The following data are from an experiment designed to assess the effects of nitrogen fertilizer rate on stockpiled tall fescue yields at three harvest dates. The experimental design was a split plot with four blocks. Four rates of nitrogen fertilizer were applied to whole plots and subplots were harvested at two-week intervals after frost. All factors other than blocks were fixed. Nitrogen fertilizer rates were 0, 28, 56, and 112 kg N / ha, respectively.

Rate	Date	Block			
		1	2	3	4
0	1	2701	2210	1322	1369
0	2	1941	2260	1169	1124
0	3	1987	2275	1534	965
28	1	4425	2121	1792	2645
28	2	3469	1868	1493	2748
28	3	3644	1691	1904	2667
56	1	4625	3053	2860	3092
56	2	3877	2358	3375	2321
56	3	3631	2713	3192	1329
112	1	5183	3110	3650	2560
112	2	4930	2345	3736	3077
112	3	4631	2391	3786	3045

- a. Write the linear additive model and expected mean squares for the experiment.
 - b. Perform the analysis of variance.
 - c. Use contrasts to determine the order of the polynomial that best describes the nitrogen fertilizer and harvest date responses.
 - d. Fit an appropriate equation for yield response to N rate for each harvest date.
 - e. Graph your results.
 - f. Interpret the results.
- * turn in your SAS program as well as output