

Statistical questions addressed by this study

Question 1: Is there a difference in the average fiber diameter across the levels of region?

$H_0; \mu_1 = \mu_2 = \dots = \mu_6$, where μ_i is the population mean for the i -th level of region.

H_1 ; At least one is different $(\mu_i \neq \mu_j, i \neq j)$.

Question 2: Are the measurements of width vary from one analyst to another?

$H_0; \sigma_B^2 = 0$ vs. $H_0; \sigma_B^2 > 0$

Question 3: Is there a significant interaction effect between the region and the analyst?

$H_0; \sigma_{\alpha\beta}^2 = 0$ vs. $H_0; \sigma_{\alpha\beta}^2 > 0$