Project 1: Moisture Content of Tree Branches

Yingxue Yu, Guanqun Liu, Yulun Jiang

Setup (To be removed)

Model Fitting

To test the effect of the method of cutting, which is indicated by location variable, on the moisture contents, an analysis of variance is made. Model is chosen by performing stepAIC. Three runs of stepAIC are performed: a forward selection starting from intercept, a backward elimination from all first order factors and second order interactions, and a forward-backward search that starts from all first order factors. The same model is selected by all 3 runs, which is

$$
\begin{aligned}
moisture = {} & \beta_0 + \beta_1 \cdot ShortleafPine + \beta_2 \cdot YellowPoplar + \beta_3 \cdot RedGum + \beta_4 \cdot Distal \\
& + \beta_5 \cdot Proximal + \beta_6 \cdot Slow + \beta_7 \cdot ShortleafPine \cdot Slow \\
& + \beta_8 \cdot YellowPoplar \cdot Slow + \beta_9 \cdot RedGum \cdot Slow \\
& + \beta_{10} \cdot Distal \cdot Slow + \beta_{11} \cdot Proximal \cdot Slow
\end{aligned}
$$

The Least Square means of the fitted model is 153. (Values for βs are listed in Table...) All other terms in the formula are indicator variables. For example, a sample taken at distal location of a branch of Shortleaf Pine with slow transpiration would have terms $ShortleafPine, Distal, Slow$ equal to 1, and all other terms equal to 0.

Some Visualisations(To be removed)