Stat 401: Lab 2 – self assessment

Download the tomato data, tomato.txt, from the datasets page of the class web site. These are the values used last week in the "paper" exercise. This is a randomized experiment comparing a proposed "better" fertilizer to my usual fertilizer. Seven plants (treatment a) were randomly assigned to the "better" fertilizer; the other seven plants received the usual fertilizer. The measurement units are pounds of ripe tomato.

a) Draw side-by-side box plots of the yield for each of the two fertilizers

b) Estimate the difference in mean yield between the two fertilizers (a-b). Include units.

c) Estimate the difference in median yield between the two fertilizers (a-b). Include units.

d) Use a randomization test to test the null hypothesis of no effect of the fertilizer on mean yield. Report the two-sided p-value.

Answers:

a)



b) 6.53 pounds (average for a: 8.16, for b: 1.63)

c) 4.64 pounds (sample median for a: 5.66, for b: 1.02)

d) 0.036 or something near that (each set of 10000 simulations gives a slightly different estimate)