Example – concentration5:insecticidethiacloprid

estimated mean of thia 5 = intercept (675) + conc 5 (43) + thiacloprid (10) + concentration5:thiacloprid (-321) = 407

intercept = acet 0

conc 5 = effect of conc 5 on growth for acetamiprid, relative to acet 0

thiacloprid = effect of thiacloprid on growth for conc 0, relative to acet 0

concentration5:thiacloprid = effect of conc 5 on growth for thiacloprid AND effect of thiacloprid on growth for conc 5, relative to effect of conc 5 on growth for acet AND effect of thiacloprid on growth for conc 0.

Interested in:

The effect of thiacloprid on growth for conc 5, relative to effect of thiacloprid on growth for conc 0.

NOT

The effect of conc 5 on growth for thiacloprid, relative to effect of conc 5 on growth for acet.

Therefore, interpret it as the effect of thiacloprid on growth for conc 5, relative to effect of thiacloprid on growth for conc 0.

The distribution of the controls affects the contrasts. Makes the effect of insecticide on conc 0 for each insecticide different each time.

Rob Discussion

Because there are so many contrasts in my model I am not avoiding the issue of multiple hypothesis testing by using one model.

My interaction term in my model isn’t significant, which is expected as most insecticides show no strong interaction with concentration, apart from thiacloprid. Conc0.1:imidacloprid interaction is significant. This isn’t really powerful evidence though because there are so many contrasts in my model that by chance one should be significant.

Make a model without the interaction term just to check if an insecticide is having an effect at all concentrations.

Analyse Thiacloprid separately from the rest of the data as it’s the only insecticide with an apparent effect. It makes everything clearer.

Apply a Bonferroni correction to the contrasts (except for the insecticide row which is the difference between the control groups). Conservative. Corrects for type 1 error (false positives). Rob says he doesn’t like the Bonferroni correction.