1. Transform the non-Gaussian outcome ‘tot.vase.days’ into a longitudinal binary outcome (i.e. fresh=1/not fresh=0), and analyze the data taking into account the available covariates.

* GEE, only taking into account flowerID as clustering effect
* Or generalised linear mixed model? Where time,

We have conducted an additional small experiment on the width of the flower and would like you to answer the following questions:

- Very helpful model about fitting GLMM in R: <https://www.youtube.com/watch?v=Yqf91pPzkU4>

- for GEE: geeglm() provides robust/empirical standard error estimate.

GEE:

Where is the probability that the ith flower stays "fresh" on day jth. Compoundk : compound-specific dummies. The slope is interpreted as the log odds ratio that a flower stays fresh with any compound compared to water.

(b) Analyze the Gaussian outcome ‘width of the flower’ taking into account the covariates and the subplot effect.

(c) Explore/Visualize the Gaussian outcome ‘width of the flower’ (T0 up to T20) with a multivariate method.

- EDA: Evolution over-time of width of each compound

- PCA: https://www.datacamp.com/tutorial/pca-analysis-r

(d) Confirm (part of) the conclusions of your data analysis on the Guassian outcome ‘width of the flower’ using a multivariate method.

2 initial questions for the count\_data\_G17 dataset (non-Gaussian outcome) (our proposed experiment):

(e) analyze tot.vase.days outcome using linear mixed-effect model (normal assumption)

(f) analyze tot.vase.days outcome using generalized mixed-effect model (poisson distribution)