STATS 604 Project 3 Preanalysis Plan

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Introduction

In this project, we attempt to analyze various procedures for preserving the freshness of cilantro. Namely, we will attempt to measure if the following have any effect:

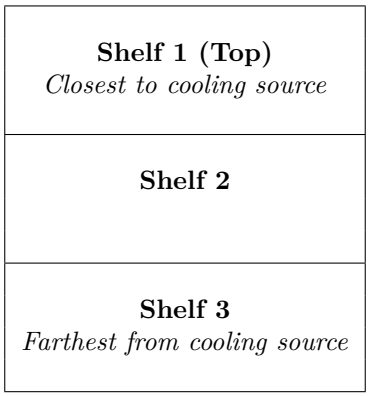
- Keeping cilantro in the fridge versus outside
- Keeping cilantro in a plastic bag versus not
- For refrigerated cilantro, keeping cilantro close to the cooling source at the top of the fridge versus farther away.

We hypothesize that cilantro kept in a fridge in a bag and far away from the cooling source will remain fresh for longer.

Methodology

Experimental setup

For convience and budgetary concerns, we decided to use a group ate's mini-fridge to study the effect



Mini-Fridge layout

Randomization Scheme

From our 40 cilantro stalks, we assigned a group of 5 cilantro stalks to one of eight treatment groups at random. The treatment plans for each of the eight groups is as follows:

Group	Location	Bagged
1	Outside the fridge	No
2	Outside the fridge	Yes

Group	Location	Bagged
3	Fridge shelf 1	No
4	Fridge shelf 1	Yes
5	Fridge shelf 2	No
6	Fridge shelf 2	Yes
7	Fridge shelf 3	No
8	Fridge shelf 3	Yes

Testing Procedure

Things to test:

1. Fridge layer versus each other

- Compute mean of differences and compare
- Compute F statistic, permutation test on F statistic for the three levels
  - Sensitive to outliers

Possible issue: when we weigh cilantros collectively, we can't really apply a permutation test. So do we continue to use weight as a metric?

If no significance found, pool the fridge samples

2. Fridge versus outside

3. Out of bag vs in-bag -If Test 1 was significant, there is some necessary stratification.

Should pre-analysis plan specify response to common issues? (i.e. If my data has a long tail, should I pre-specify that I plan to use medians. A: yes)

More versatile possiblity: using ranks, which works with F statistics.