

1-D BLIP Project: Yellow and Giant Foxtail Spike Morphology

Names: [REDACTED]



Purpose of experiment: The purpose of our Inquiry Project is to determine what causes the (or Hypothetical Quest.) difference in Yellow and Giant Foxtail spike morphology.

Hypothesis 1: The spike of Yellow Foxtail does not droop like Giant Foxtail because the water content within the Yellow Foxtail's stem is greater.

Experiment: Testing Hypothesis 1 will involve comparing the weights masses of freshly collected specimens of Giant and Yellow foxtail with the weights masses of the same specimens when they are dried.

Comment [S1]: "stem" or see my e-mail and website for specific term for this specialized stem

Comment [S2]: How will you "control" the variation in mass due to the linear variation of your sample? [or] What will determine length of your sample?

Hypothesis 2: The spike of Yellow Foxtail does not droop because the diameter of the peduncle (=stem supporting an inflorescence) of Yellow Foxtail is greater than that of Giant Foxtail.

Experimental Design: Hypothesis 2 will be tested by measuring the stem diameter of Giant and Yellow Foxtail and comparing the data to determine significance.

Comment [S3]: GOOD!!

Hypothesis 3: The spike of Yellow Foxtail does not droop because the weight of its spike is less than that of Giant Foxtail.

Experimental Design: Hypothesis 3 will be testing by weighing (or "massing") the spikes of Giant and Yellow foxtail and comparing the data to determine significance.

Materials:

- Scissors (for collecting samples)
- Ziploc bags and cellophane bags for temporary storage
- Paper envelopes (for storage drying samples) – Suggestion: develop a number code with which to reference each sample (plant) so that you can trace dry mass of spike and peduncle to the same plant (samples) when you analyze the data – i.e. so that these two parts don't get disconnected from each other among your samples and can be combined on the same row in a spreadsheet when you record the respective measurements
- Scales Electronic balance (for measuring weights determining mass to nearest 0.1 mg (0.0001 g!))
- Oven (for drying specimens)
- Rulers (measuring)
- Microscopes with ocular micrometer (measuring diameter/observing specimens)
- Flower presses (for preserving specimens)

Questions from Dr. S:

1. Do you have a good location where both species seem to be in good condition and aren't drying up or losing seeds? If not, let me know.
2. How many samples will you obtain for each test of a hypothesis? i.e. n = ? I suggest no fewer than n = 7 Expand your "Experimental Design" to detail how you will obtain your samples, how many, obtaining masses, etc.
3. Do you have other questions of me? [I like your proposal and your equipment will be prepared and ready for as early as tomorrow afternoon. Thanks