



Dr. Katie Murphy

How to Take a Good Photo



DONALD DANFORTH
PLANT SCIENCE CENTER

Steps to take a great photo for analysis and publication – NO PHONES!

1. Camera setup:
 1. Stability
 2. Focus
 3. Exposure
2. Plant setup:
 1. Staging the shot
 2. Color card
3. Saving images

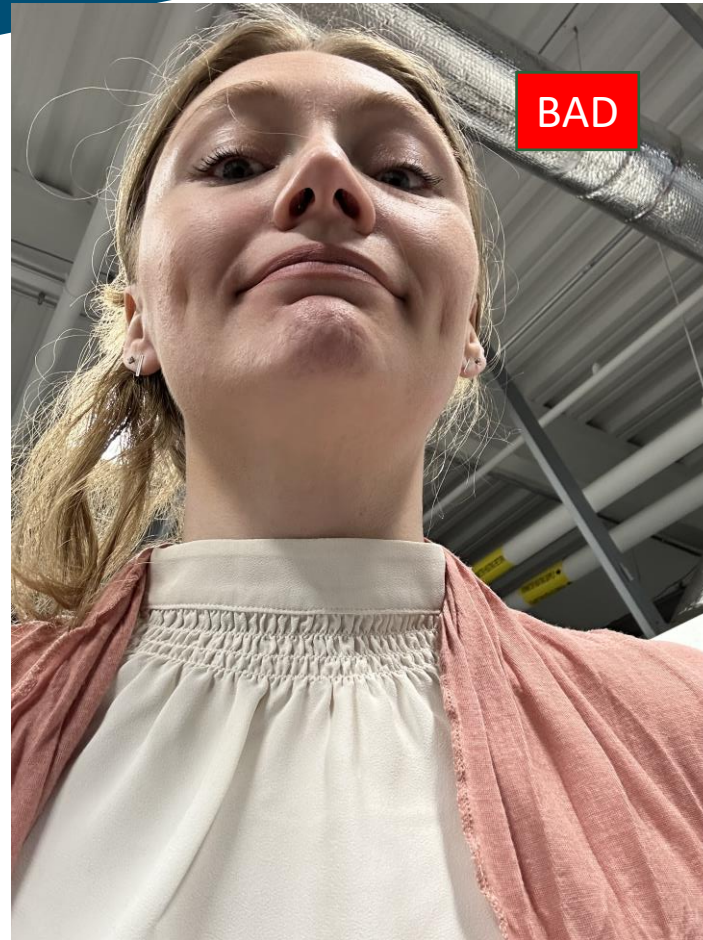


How to set up your camera

- Don't use your phone
- Straight and **stable** camera
- Auto or manual focus
- Lower the exposure until it's not too bright
- Check what the photo look likes before taking more



Make sure your camera is straight on!

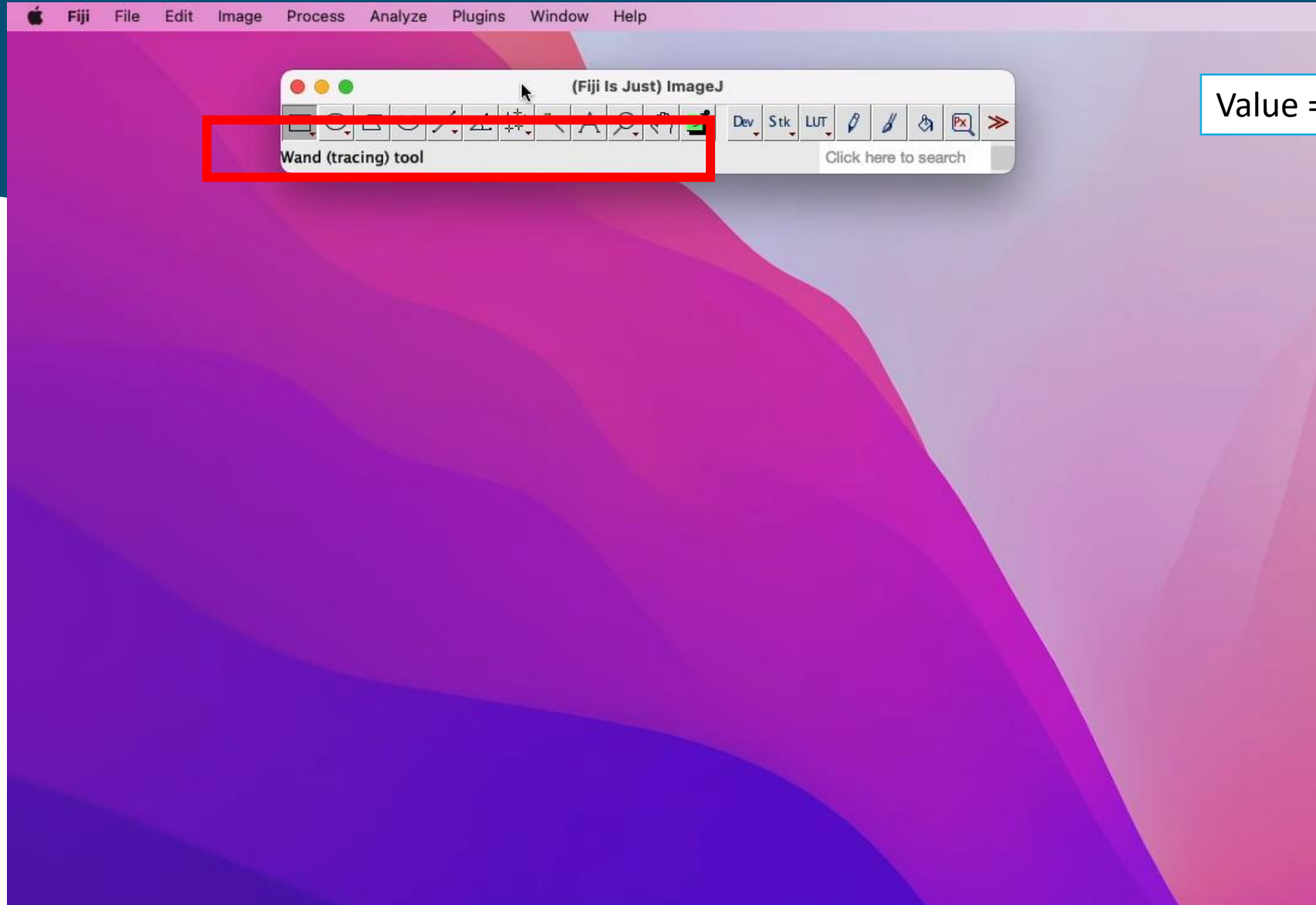


How color works in a picture, and why it matters to responsible research

- Pixels have a value from 0 to 255 for that color
- Color is how we decide “plant or no plant” during analysis
- We can “normalize” color across images, which also makes them look good

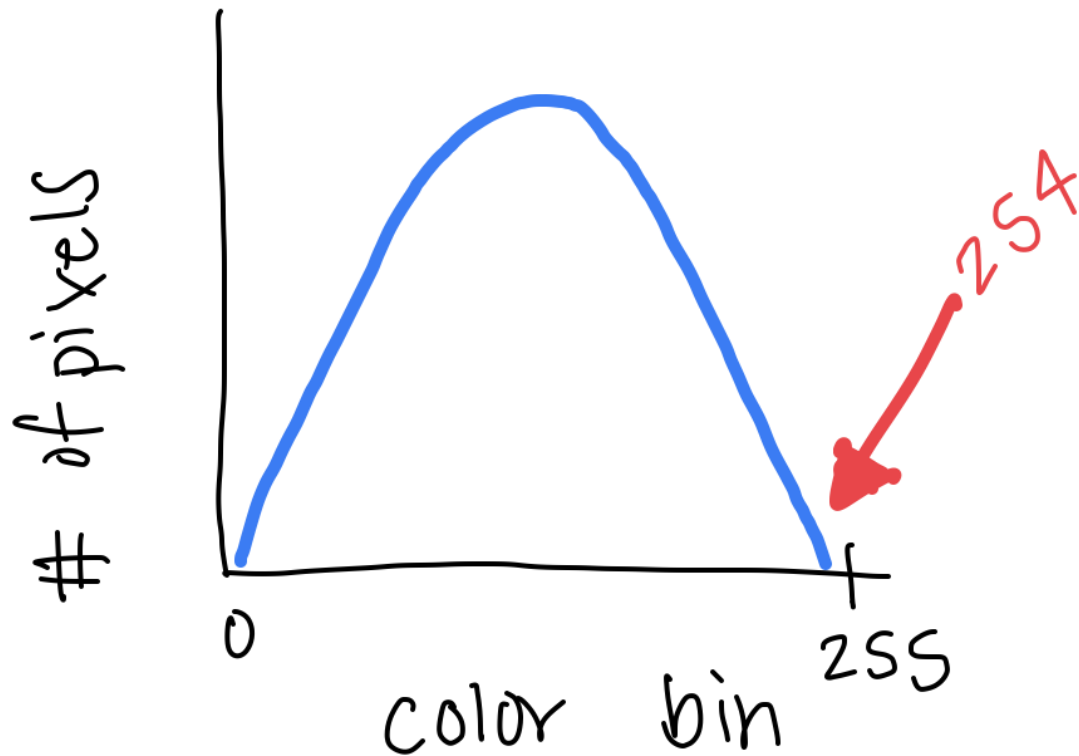


How to check your color values in Fiji

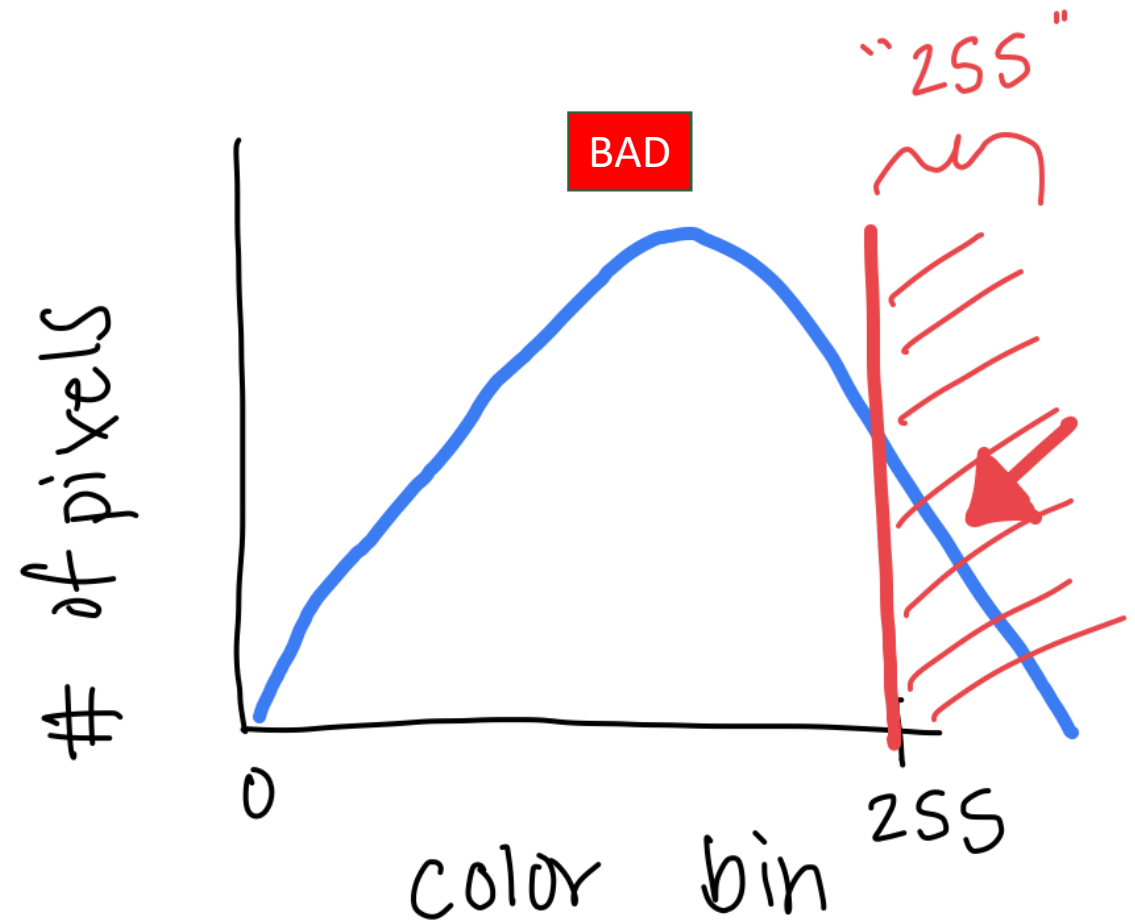
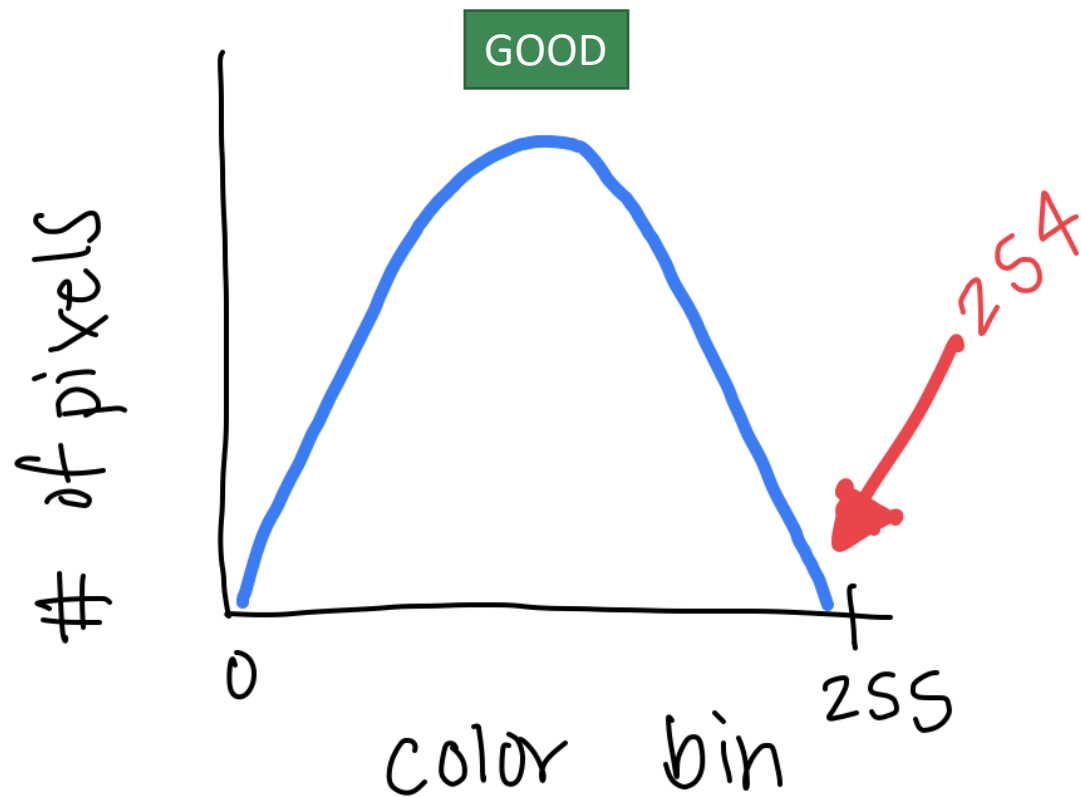


Value = Red, Green, Blue

Every pixel in an image falls on a histogram



These histograms have a maximum, so over the max is “false” data points!

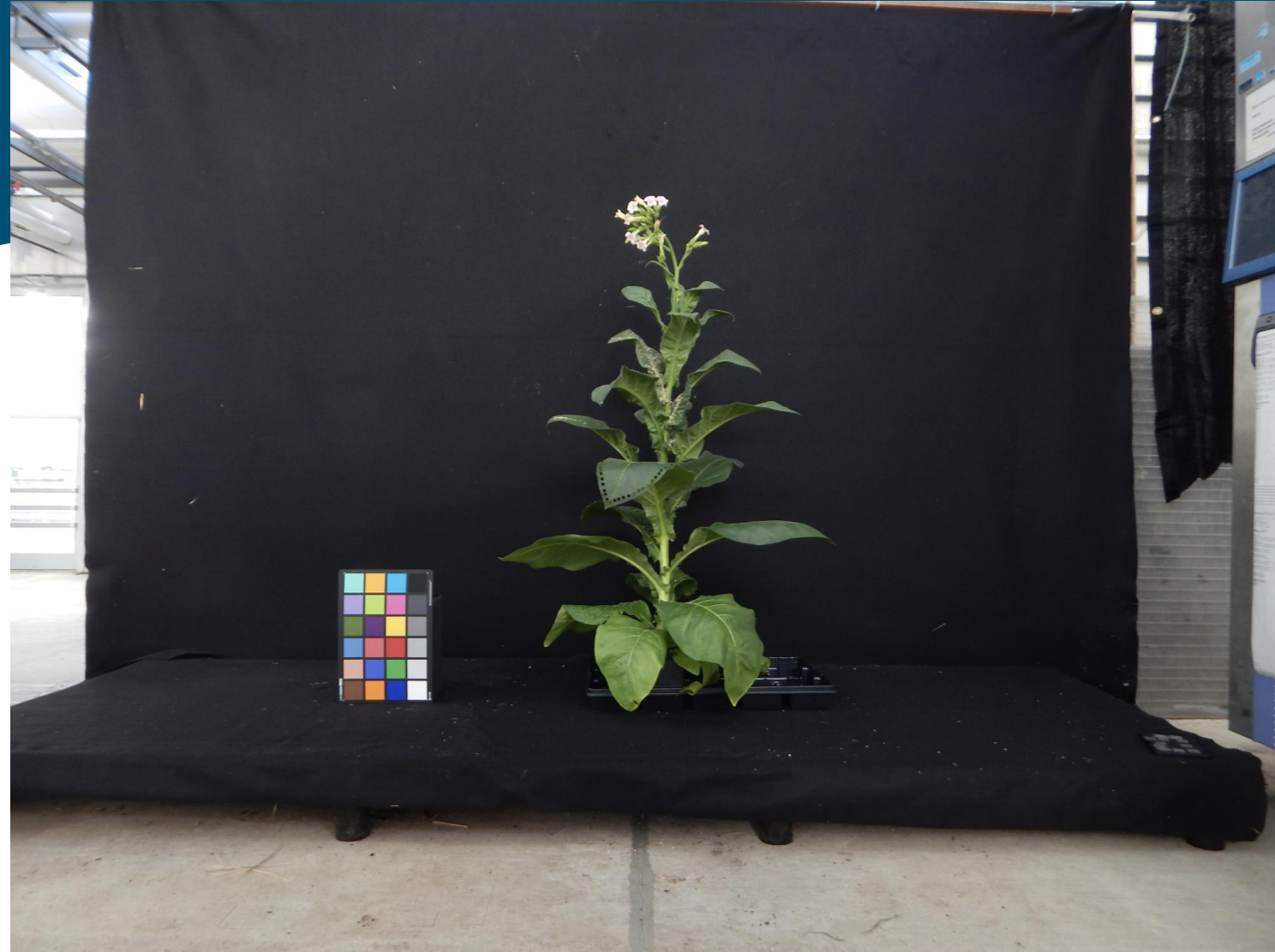


How to adjust exposure (+/- button)



Plant setup

- Color card (which is a size marker)
- Plants don't touch each other
- Clean background
- Same location for each plant



Color card setup

- You should be able to draw a box around your plant and not touch the color card
- Imagine: Can I crop this out easily?

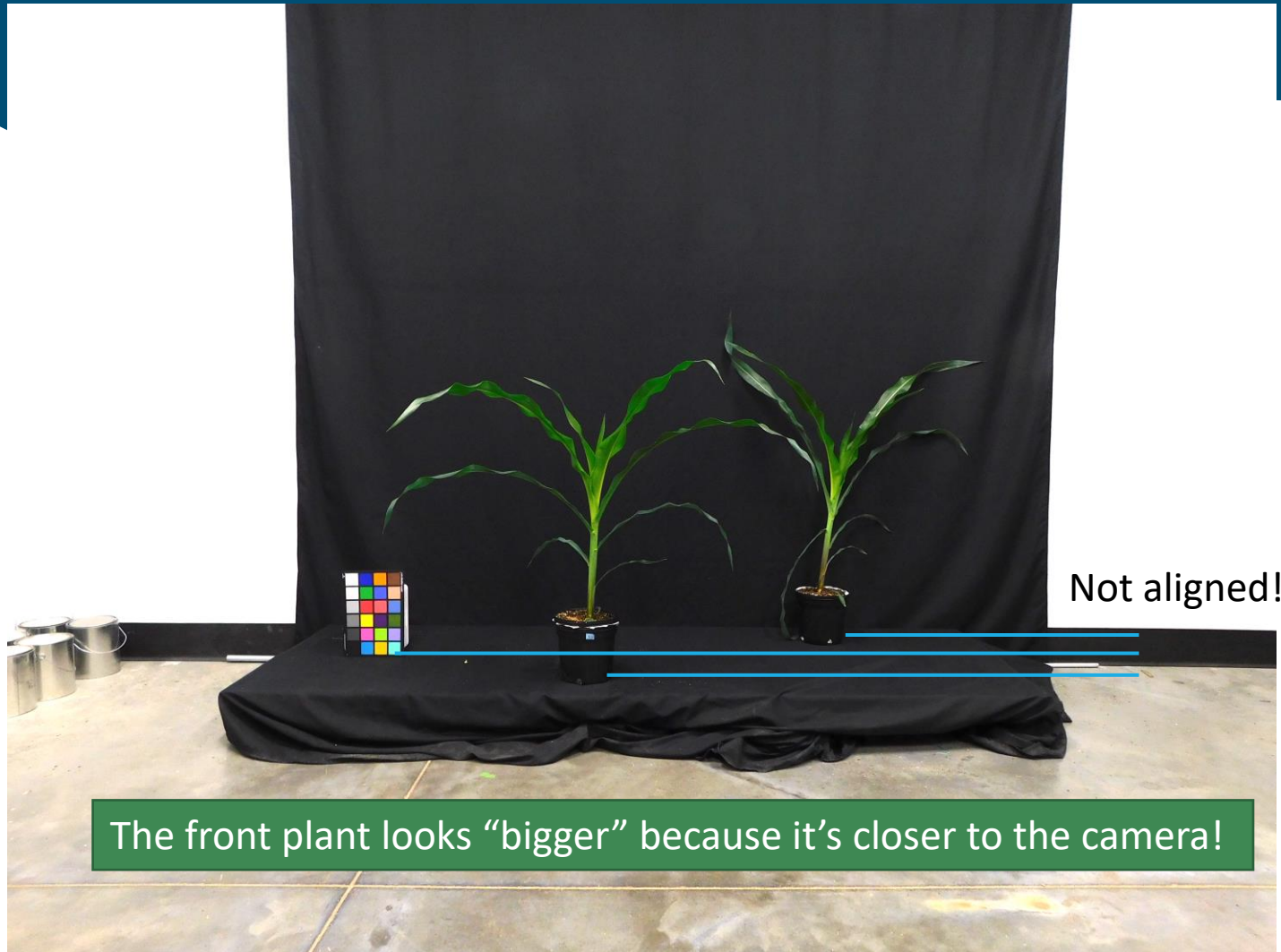


Getting relative size correctly

- Distance to the camera affects how “big” your plant looks
- If you have a size marker, you can be closer or farther from the plants for each picture
 - BUT: your size marker and plants need to be in the same line!



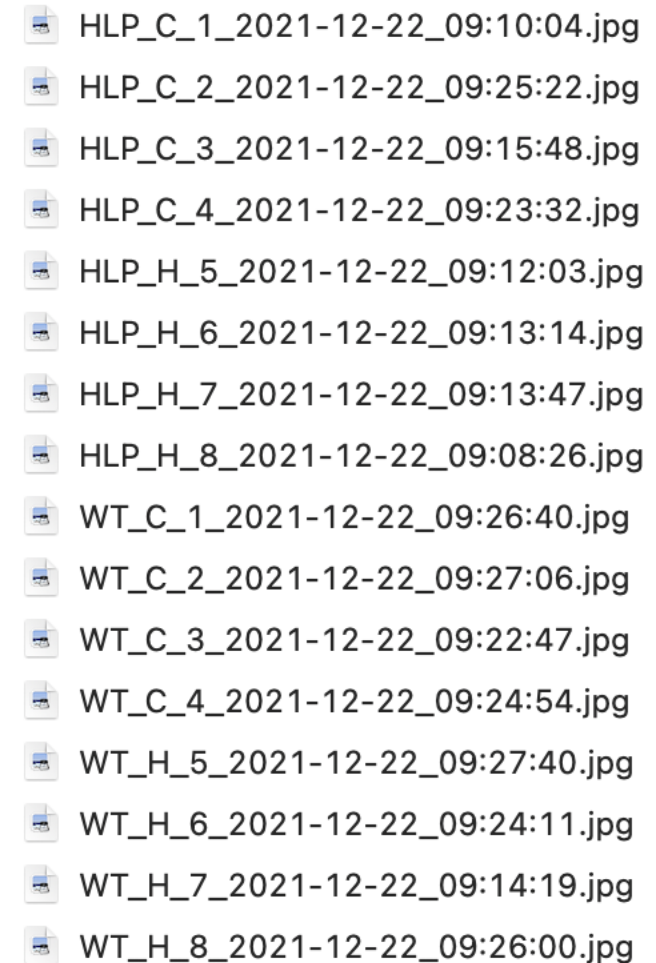
Line up your plants to scale properly



Saving images: important record keeping!

- Genotype, treatment, date, replicate
- Keep raw images separate from processed images!
- Raw images should be kept in an archive
- Use a barcode or QR code scanner

> raw_data > raw_image > photocart_2021 > 12222021_Nt_s



A screenshot of a file explorer window showing a list of image files. The files are organized in a folder structure: raw_data > raw_image > photocart_2021 > 12222021_Nt_s. The list contains 16 files, each with a small image icon and a filename followed by a timestamp in YYYY-MM-DD_HH:MM:SS.jpg format. The files are grouped by genotype (HLP and WT) and treatment (C and H).

File Name	Timestamp
HLP_C_1	2021-12-22_09:10:04.jpg
HLP_C_2	2021-12-22_09:25:22.jpg
HLP_C_3	2021-12-22_09:15:48.jpg
HLP_C_4	2021-12-22_09:23:32.jpg
HLP_H_5	2021-12-22_09:12:03.jpg
HLP_H_6	2021-12-22_09:13:14.jpg
HLP_H_7	2021-12-22_09:13:47.jpg
HLP_H_8	2021-12-22_09:08:26.jpg
WT_C_1	2021-12-22_09:26:40.jpg
WT_C_2	2021-12-22_09:27:06.jpg
WT_C_3	2021-12-22_09:22:47.jpg
WT_C_4	2021-12-22_09:24:54.jpg
WT_H_5	2021-12-22_09:27:40.jpg
WT_H_6	2021-12-22_09:24:11.jpg
WT_H_7	2021-12-22_09:14:19.jpg
WT_H_8	2021-12-22_09:26:00.jpg

What NOT to do when taking photos

- No green tape or tags!!
- Don't crowd your plants
- Don't think you need to be a professional to get good photos



Your checklist for a great photo

- ☐ Spread your plants out
- ☐ Solid color background
- ☐ Include a color card, but not too close
- ☐ Stabilize your camera
- ☐ Turn the exposure down
- ☐ Label your images



Always remember, a photographer's best tool!





DONALD DANFORTH
PLANT SCIENCE CENTER