

WEIGHING PROTOCOL -

Location: 157 Crawford "CHN room"

This is a three-part process

1. Weighing
2. Grinding
3. Preparing plant parts for CHN burn (tinballing)

I. Weighing Protocol

BE CERTAIN THAT YOU ARE RECORDING ALL WEIGHTS IN GRAMS. CHECK THE EXISTING DATA FILES TO BE SURE YOU ARE RECORDING WEIGHTS IN THE SAME FORMAT AS PREVIOUS WEIGHTS. IF NO PREVIOUS FILES EXIST FOR YOUR EXPERIMENT, CHECK WITH STEVE TONSOR. THIS PREVENTS A WEIGHT FROM THE CAHN BALANCE OF 0.002 g FROM BEING RECORDED AS 2.0 (since two milligrams reads as 2.00 on the Cahn).

A. Obtain the following:

- i. milligram-accuracy Mettler balance from Tonsor Biochem lab 163 CD.
- ii. calibration weights in the calibration weights are in a black plastic box on the marble table that holds the Cahn microbalance in the back of CD 157
- iii. Stainless steel weighing container from Tonsor Biochem lab 163 CD, end of the top shelf on the middle island, labelled 'WEIGH BOAT'.
- iv. laptop for data entry
- v. spreadsheet with header according to standard form (see Spreadsheet Header protocol).
- vi. A sheet of parchment paper from the wide drawer below and to the right of the printer in Tonsor Lab 162 CD.
- vii. A banker's box full of unweighed plants from the experiment on which you are working.
- viii. An empty banker's box for "unground" plants that have been weighed. You will be placing bags in here as you finish weighing their contents.

B. Set up an area of table top with about a meter of space on either side. Level the Mettler milligram scale by turning the knurled knobs on the front feet of the balance until the bubble in the back is centered in the black circle.

C. Turn on the Mettler by depressing the weigh bar on the front bottom of the scale.

D. Weigh a calibration weight to see that the scale is properly calibrated. Handle calibration weights only with the forceps in the black plastic box. If you cannot get the scale to calibrate, see the lab manager. Put the calibration weights back where you got them.

E. Tare the Mettler scale with the weigh boat on it:

- i. place the boat on the scale
- ii. wait until the readout is steady
- iii. depress the weigh bar.
- iv. the readout should now indicate zero weight with the weigh box on it.

F. All the harvested plant parts for one plant are in one paper bag.

- i. The information on the front of the bag should correspond to columns of the spreadsheet. For example, the bags from the HEAT-DROUGHT 2007 Experiment Has the following information in order from top to bottom and left to right: DATE, POT, WATER TRMT, HEAT TRMT, CHAMBER.
 - ii. In addition, inside the larger paper bag will be one or more glassine bags or parchment packets. These will be labeled with the same information. At a minimum, there will be a glassine bag containing the root mass. For some experiments there will also be bags/packets containing rosettes and/or siliques. For each kind of bag there should be an additional column in the spreadsheet. Thus, for HEAT-DROUGHT 2007, the spreadsheet column headers will read:
DATE, POT, WATER TRMT, HEAT TRMT, CHAMBER, ROSETTE MASS, INFLORESCENCE MASS.
 - iii. Bags should be handled over parchment paper so any loose plant matter will not be lost.
- G. Place a part in the weigh boat.
- H. Allow the readout to become constant. If the weight is less than 0.005g, go to the CAHN balance, calibrate and weigh that part; record in the spreadsheet. **MAKE SURE YOU RECORD IT IN UNITS OF GRAMS. BE CERTAIN YOU KNOW WHAT A GIVEN READOUT MEANS IN GRAMS. IF YOU AREN'T CERTAIN, ASK.**
- I. Replace the part in its bag & mark with an X on the bag to indicate weighing is done. Clean the weigh boat and the scale pan carefully with a fine paint brush or one of the small cannister vacs. Move on to the next part., repeating G-H for each part except for siliques, which will be weighed later on the CAHN balance if present in a glassine bag.
- J. Place a large "X" on the outside of the big bag, and put in "unground" banker's box from the same treatment.
- K. From time to time SAVE the excel spreadsheet. Email it to Tonsor or the Lab Manager at the end of your work period for backing up.
- L. **PUT EVERYTHING BACK WHERE YOU GOT IT.** The job isn't done until all is back in place and the workspace is clean.