

Arabidopsis Growth Chamber Policy

Background: Arabidopsis plants are susceptible to multiple pests and pathogens such as Powdery Mildew, Thrips and Aphids. Past experience has shown that our most effective way to reduce the risk of pests and pathogen outbreaks during growth of Arabidopsis is to use a three-stage, rotational chamber system. Seeds are sown and placed in a germination chamber, then moved to a vegetative growth chamber and finally to a seed harvesting room.

The benefits of cycling plants are only realized if plants are moved from one chamber to another in a timely fashion. A breakdown in this process has several consequences. Because many of the plants grown in these chambers are transgenic, we must comply with Federal guidelines to prevent release into the environment. As the plants mature and senesce, seeds drop from the plants and end up going down the drain, on the floors and shelves and into other researcher's flats. Furthermore, the process of IPM is only effective when followed completely. Even with the present support of project leaders, this policy has not been consistently observed which impacts all users of the growth facilities. Importantly, if one of the users is not following the chamber policy, it can negatively impact all of the other users.

Policy: The following growth policy should be formally reviewed by all users and implemented to reduce the spread of pests and pathogens and maintain compliance with transgenic regulations.

- 1.) Every flat or pot of Arabidopsis must be labeled with the individual's name, lab and planting date.
- 2.) Pots and flats will be placed in a germination chamber for a maximum of **4 weeks** after planting. Plants must then be moved to the vegetative growth chamber to mature.
- 3.) Plants will remain in the vegetative growth chamber until they are ready to drop seed. For most cultivars/accessions of Arabidopsis the time in the mature plant chamber should be approximately **3 weeks** after transfer from the germination chamber.
- 4.) Plants should be moved to the plant harvest room when the first two or three siliques begin to turn brown and **before they begin dropping seed**. If some of the plants in the flats are not ready to dry down at this time, there are lighted shelves available for rental in the harvest room and the greenhouse staff will continue to water plants on these shelves. There is also space available for each lab to dry down plants in the harvest room.
- 5.) If necessary, the greenhouse staff will notify users and PI's by e-mail that plants must be moved to a new growth chamber or the 'dry down' room.

- a.) E-mails will be sent as a last resort before billing. It is important to remember that it is the responsibility of the user to make sure plants are properly maintained, moved and harvested.
 - b.) Users must bear in mind that an e-mail is a courtesy. It is the responsibility of the user to monitor the progress of plants and transfer when necessary.
- 6.) If the greenhouse staff must transfer flats, the PI will incur a 1 hour charge (per occurrence).
- 7.) The greenhouse staff will label flats that are ready for harvesting with a “remove by this date” sticker when the soil and plant tissue are completely dry.
- a.) This will allow for a 4-week grace period for harvesting and disposal of seed flats.
- 8.) If plants are not removed by the harvest date, flats will be bagged, dropped off at the PL’s lab for disposal and the PL will incur a 2 hour charge.
- a.) The disposal of plants to a PL’s lab is not intended as a ‘service’ but rather the final option of the greenhouse staff.

These minimal charges are necessary to ensure the health of plants in the chambers and ensure that a single user’s negligence does not affect the research of multiple PI’s. Good communication between the greenhouse staff and users will help ensure that charges are kept to a minimum.