



DONALD DANFORTH
PLANT SCIENCE CENTER

PLANT GROWTH FACILITY USER MANUAL

An Orientation to Policies and Practices

Updated May 2026

The policies and guidelines outlined in this manual have been developed by the Plant Growth Facility (PGF) Management Team and PGF Oversight Committee.

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Mission of the Plant Growth Facility

The Plant Growth Facility (PGF) provides collaborating scientists with best-in-class resources for research, product development, and learning. We accomplish this by designing, operating, and maintaining state-of-the art controlled-environment growth facilities, and through the client-focused services of our expert staff.

Facility Description & Maps

The PGF includes 50 greenhouses and 100 growth chambers of various sizes that control and contain many different plant species. Greenhouses are climate-controlled to maintain plants' natural growing environments by manipulating parameters such as temperature, humidity, and day length. In addition, cutting-edge growth chambers allow for precise environmental control by providing carbon dioxide addition/scrubbing capabilities and the creation of custom light spectra. The PGF's expert staff provides plant care year-round, allowing researchers to focus on the science that will advance the Center's mission to improve the human condition.

[Plant Growth Facility Website](#)

[Map of A Building, Level 0](#)

[Map of B Building, Level 0](#)

[Map of Danforth Greenhouses](#)

A list of greenhouses and growth chambers can be found [here](#). Click on the individual greenhouse or growth chamber to see its user, primary contacts, and other details.

PGF Staff & Contact Information

PGF staff members are available on site seven days a week to address any questions or concerns users may have. General work hours for PGF staff are between 8am-5pm Monday-Friday, with weekend staff present Saturday and Sunday. The PGF Manager is on call 24/7 to address any alarms or emergencies. Feel free to contact the PGF Manager or other staff members directly. We are committed to resolving your inquiries in a timely manner.



PGF Director

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See the entire PGF staff on the [Danforth Center website](#).

Open Office Hours: The PGF offers weekly office hours from 10 am to 11 am every Tuesday in the Lower Atrium. Feel free to drop by with any questions or concerns that you may have regarding your work within the facility.

PGF Services & Supplies Offered

A number of standard services and common supplies are included in the growth space rental fee. Extended (non-standard) services and specialty supplies may be offered at an additional fee.

PGF standard services (included in growth space rental fee):

- Programming and monitoring of computer-controlled environments
- Watering 365 days a year
- Maintenance of proper soil fertility levels
- Pest scouting and control measures within our Integrated Pest Management (IPM) program
- Adjusting and maintaining supplemental lighting and photoperiod control
- Greenhouse maintenance and routine sanitation



- Autoclaving/devitalization of all plant material
- Setting up automated irrigation systems when the use of the system is deemed cost effective due to the reduction in hand watering
- Advise and assist with planting and repotting crops when time permits. Users must give advance notice.
- If the estimated time to complete a requested task is great than one man-hour, a weeks' notice is required, and charges will be incurred (see below). Otherwise, 24-hour notice is sufficient if time is available.

Supplies provided for users' potting needs (included in rental fee):

- Potting mixes: Berger 7-35%, Promix BX, Promix FPX
- Supplemental media components: Vermiculite, Perlite, Sand, Profile Field and Fairway, Turface® MVP
- Various sizes of square and round standard greenhouse plastic pots, trays, plug trays, cell inserts, and nursery containers
- Clear domes
- Rooting hormone
- Carts for transport
- Small supply items such as bamboo stakes, twist ties, and pot labels
- Safety items including disposable gloves and personal protective equipment (PPE)

Extended PGF services (offered for added fee):

These services may be offered by the PGF based on time and labor availability. Users will be charged for the following services:

- Seed sowing in plugs or trays and transplanting of seedlings to pots
- Direct seed sowing in final pots
- Transferring to soil from tissue culture and potting up of rooted cuttings
- Propagation of cuttings and potting of stake cuttings
- Moving plants from potting room to a growth area, or moving plants from one area to another, unless the change of location is initiated by the staff.
- Maintenance of stock plants beyond the base care above (i.e., leaf removal, pruning, repotting, restarting new cuttings, keeping records, etc.)
- Any crop specific record keeping and labeling
- Pollinating and bagging of flowers
- Seed harvest, cleaning, and packaging
- Tissue Sampling
- Staking and pruning of plants
- Other services that are beyond standard offerings



Facility Users' Responsibility

- Users are required to complete general safety and pesticide safety training BEFORE working in the PGF, which includes the New Employee Safety Training and WPS Safety Training. Contact DDPSC Sr. EHS Manager (Jim Cox) and PGF Operations Manager (Mary Lyon).
- Users must plan supply needs in advance. If the supplies needed are not part of our standard supplies, at least two-weeks notice is required. Contact the Operations Manager for purchasing information. For these special request items, the user will be charged. (See page 7 for growth space rate information.)
- At least 7 days in advance, all new growth areas and all multi-user growth areas must have a space request submitted. (If your lab already has a reserved greenhouse or chamber, you do not need to submit a space request for this to move plants in this growth space.) **Please click [here](#) to request greenhouse or chamber space.**
- All plants must be logged into our Plant Transfer Record (PTR) system. Barcode tags will be printed and must be used when placing any plants in the facility. There should be a tag placed in all flats and all pots 1-gallon size or larger. *See "Creating a PTR" under the "PGF Resources" section on the PGF website for more information.*
- Plants should be spaced properly to ensure air movement and access for watering, as determined by the staff. Staff may move plants within a chamber or greenhouse if needed.
- Users should provide relevant instructions and feedback to the greenhouse team regarding their plants and what they need. Signs which can be placed in pots/flats are provided for basic care instructions and are located in the Main Potting Room.
- Growth spaces and work areas should be kept clean and organized when work is completed.
- The Greenhouse or Chamber managers should be notified when an experiment is terminated before the anticipated end date or your growth space is no longer needed.
- If users feel their plants are not being properly watered, they should talk with their designated horticulturist. Do not water your own plants unless you have placed a "Do Not Water" sign in the pot or flat and are taking care of watering full-time.
- All PTR tags should be removed at plant disposal and checked out of the system. Place used PTR tags in an orange receptacle.



- To achieve our sustainability goal, each potting room has a shelving unit for collecting dirty pots and trays. [Click here](#) for a list of pots and trays that are sanitized and available for reuse. Before stacking materials on shelving units, shake all loose debris into an orange receptacle.
- **All plant materials and other bio-waste (including all dirty pots and trays not mentioned above) must be discarded in orange trash cans, carts, or tubs. (See page 17.)**

PGF Etiquette

Due to the large number of users in our potting rooms and greenhouses, everyone is expected to clean up after themselves and keep their growth and working areas organized. It is the user's responsibility to clean up when finished.

After finishing work in the potting room:

- Brush off worktables with the hand brooms and dust pans. All debris must go in orange trash cans.
- If benches are wet, there are hand squeegees at the sinks for removing the water into orange trash cans.
- Brush off carts after transporting plants to growth areas. If they are still dirty, hose the carts down by the drain in A-Range, located to the right after going into the corridor. There are also drains in each potting room. **Please brush all loose debris into an orange receptacle prior to hosing down carts.**
- Rinse sinks after use. You should always be using a sink strainer when rinsing off agar or soil and empty strainer into an orange receptacle. These should not go down the drains.
- If debris is dropped in the greenhouse or corridor, sweep up and dispose of it in an orange receptacle. Brooms and dustpans are provided in the corridors and potting rooms.
- The floor in the potting room around your work area should be swept if needed.
- All extra pots and flats not used need to be returned to the supply room.
- Work only in the area that you have reserved. Do not take up multiple spaces unless you have reserved them as well.
- Working with plants in the corridors is prohibited.

The PGF firmly adheres to submitted space request dates and quantities. If you find you need more time and/or more space, please contact the manager of the space you are utilizing. You may be instructed to submit another space request form.



Please keep in mind that space extensions are only granted if the space is available. They are not guaranteed.

Growth Space Rental Fees & Other Charges

Growth space rental fees are associated with the use of greenhouse and growth chambers/room. Internal growth space rental rates may be found at the [Greenhouse & Growth Chamber Rates](#) section of the PGF “Pages” tab on WorkVivo. The PGF offers small business and academic discounts for external companies. Pricing available upon request.

As specified above, common supplies are provided by the PGF for use by the researchers. The PGF may order specialty items on researchers’ behalf; however, the cost will be charged back to the requestor’s lab / company. In addition, requests for extended services that are beyond the scope of base-level services mentioned in PGF Services & Supplies Offered section (see page 3) may incur an additional fee.

Requesting Use of Growth Space

PGF Management is responsible for allocating growth space to DDPSC researchers and external clients.

Labs should coordinate within themselves regarding space allocation for reserved areas. Incoming graduate students, post docs, and visiting scientists should provide information about space needs for their experiments to their lab manager and/or PI. Space in growth chambers and growth rooms will be allocated on an “as needed” basis.

Please note: Our space request system is a request for space and not a reservation system. Space is not guaranteed to be available during the requested timeframe. Some chambers may have a longer wait time due to higher demand. Due to the limited availability of these spaces, not all requests will be immediately approved.

The following steps must be taken prior to acquiring growth chamber/room space. All new reserved locations and all multi-user locations will need to fill out a request form.

- Complete the PGF [Greenhouse & Growth Chamber Space Request Form](#). Be sure to fill out the form as completely as possible. Incomplete request forms may not go through. Request forms should be submitted at least 10 days in advance of the desired start date.



- Users will then receive an email with information on whether the request has been approved or not, which Horticulturist is their contact, and where the plants should be placed. **Do not put plants in a chamber or a greenhouse if you have not received approval.**
- **For external users potentially interested in PGF growth space or services, please fill out our New Client [Plant Growth Facility Intake Form](#).**
- If space is not available, the request will be added to the waitlist or offered an alternative location. The requestor will be notified when a suitable growth space becomes available.

Chamber Space

- Notification of chamber request approval will be sent within two weeks of space request submittal and will indicate which chamber has been assigned and the rental dates.
- Chambers should be requested as soon as preferred rental dates are known to ensure the chamber type needed is available. Chamber manager must be notified if the chamber is to go unused for more than two weeks during the scheduled reservation. Any rented chamber left empty for more than two weeks will be considered vacated and the reservation ended. To better align with the DDPSC's sustainability mission, any empty chambers will be turned off while unused.
- Users not following chamber policies may be asked to vacate, or their chamber renewal will not be granted.
- Compatible internal projects may be consolidated into one chamber when necessary, depending on permits, environmental settings, and space requirements. Users will be notified before consolidation.
- Users may be asked to change the chamber at any time for maintenance or logistic purposes, but will always be moved to a comparable chamber.
- Chambers need to be vacated by the end of their rental term. Users must notify the chamber manager at least two weeks in advance if they need additional time. Continued usage of their current chamber is not guaranteed.

Guidelines for Allocating PGF Growth Space

Greenhouse ranges have differing equipment and functionalities that are more conducive to growing certain types of crops. For example, A-range is equipped with



air-conditioned compartments; therefore, cool-season crops have priority for this space.

Below are the general guidelines for each greenhouse range. Where applicable, the Managers will operate under these guidelines when allocating growth space. The PGF Oversight Committee may also be called upon to advise on space allocation prioritization when needed.

All ranges:

- Allotments that allow same/similar crops to be housed in same general area (same range) are preferred. This will increase operational efficiency as well as energy savings.
- Labs whose crops do not meet specific criteria for a certain range may still rent space if there is vacancy and no impending requests to grow plants that are better suited for growth in that range.
- Allotment of space will be as equitable as possible, in an attempt to provide each lab with the appropriate and necessary amount of space for their projects.

Chambers:

Growth chambers offer highly controlled conditions, providing precise regulation of temperature, humidity, light intensity, day length, and CO₂. They also support experiments requiring biological containment that the greenhouses cannot accommodate. Priority will be given to researchers whose experiments demand this tight environmental control, require unique conditions not available in the greenhouses, or carry containment requirements best met within the chambers

Multi-User Growth Space Guidelines

All users are asked to follow the following guidelines when working in a multi-user growth space:

- All researchers must fill out a space request and have it approved before placing crops within a multi-user growth space
- All containers must have a PTR tag
- All plants must be spaced appropriately as recommended in crop protocols
- Plants may not be placed directly on the floor.
- Supplies and tools may not be stored in a multi-user greenhouse or chamber



Terminating Use of a Reserved Growth Space

By User Request: During the growth space rental term, a user may wish to terminate their use of the space and stop the accrual of rental fees. This may be requested at any time by notifying the Greenhouse or Chamber Manager via e-mail.

In the “Stop Chamber/Greenhouse Use” e-mail, please provide:

- Your name,
- Lab/department or company name
- Chamber/greenhouse number
- Date you wish to move out of the growth space

Users must clean out all plant material, containers, and any other items in growth space. Rental fees will be charged until all user materials are removed and the area can be cleaned by PGF. Advanced notice of intent to stop growth space use will help expedite the process.

External users must send their notice a minimum of 30 days before the requested termination date in alignment with their contracts.

By PGF Action: In an order to maximize the use of limited growth spaces, especially growth chambers and rooms, the PGF has been authorized to remove/reassign any users from a growth space if said user is not using the space appropriately or effectively. The user may be asked to consolidate their plants into another space or to remove their plants from the facility. The Chamber Manager must be notified if a chamber is to go unused for more than two weeks during the scheduled reservation. Any rented chamber left empty for more than two weeks may be considered vacated and the reservation ended.

Updating Growth Space Settings

For greenhouses and chambers completely rented out by users, the user may update their growth space environmental settings at any time by simply notifying a PGF Manager via email. A PGF Manager will respond when the adjustments are completed.

QR Codes:

Greenhouses and chambers each have individual QR codes on them, which can be accessed with your mobile device. These allow for more information to be relayed to the user, which may include environmental setpoints, fertilization schedules, IPM



updates, and Horticulturist contact information. You can also view these on any computer [here](#) or through the [PGF Resource section on our website](#).

Reserved Space Guidelines

All users are asked to adhere to the following guidelines when working in a reserved growth space:

- Minimum Aisle Width: 2 feet (3 feet preferred)
- All plants must be spaced appropriately as recommended in crop protocols
- Do not place plants directly on the floor
- Keep aisles clear
- All containers must have a PTR tag
- Greenhouses are not to be used as storage facilities. Please do not keep any empty containers in the greenhouse unless they are used within 7 days of placement.

Bringing in Plants/Cuttings from Outside Sources

Plants or cuttings that have been grown in the field, another growth facility, or any other external environment must be inspected for pests and disease by the PGF staff prior to entering growth spaces. Contact a Greenhouse or Chamber manager to schedule an inspection appointment if you wish to transfer outside plant material to the PGF. Proper inspection by our trained staff will ensure the safety of your crops as well as those of other researchers. If plants are clean, they may be taken to a growth space, provided that a pesticide application can be scheduled immediately. If pests are present but treatable, the plants must be temporarily taken to a designated quarantine space where they will be isolated from other plants and intensively treated for pests. In severe cases, plants will not be allowed to enter the growth facility, particularly if plants show evidence of infectious disease.

Spacing Plants

Plants should be spaced properly on the greenhouse bench or in growth chambers to allow for air movement and access by greenhouse team to water, scout, and spray. A PGF staff member will notify you if spacing needs to be modified. Do not use close spacing to make up for lack of space allocation.



Transplanting

Greenhouse users are responsible for transplanting their plants to keep them from frequently toppling over or when plants are becoming stressed. Transplanting services are offered by PGF as time permits and are billed as an extended service (see Growth Space Rental Fees & Other Charges on page 6).

Collections, “Pet Plants”, and Other Long-Term Crops

Space in the facility is reserved for research only. Personal use and “pet plants” are not allowed. Starting personal garden plants or houseplants is not allowed.

Collections should be used actively to fulfill a research mission. Plants should not be kept longer than necessary in the facility, particularly if they’ve completed their life cycle and are not actively growing. Insects and disease can become a problem in all these cases. If you will be growing long-term (perennials, etc.) research crops, please contact the PGF Manager to discuss special care procedures.

Building Structures & Auxiliary Equipment

All structures must have their final blueprints approved by the Horticulturist in Charge of the Greenhouse, the Greenhouse Manager, the PGF Operations Manager, and the Safety Officer *before* any construction is started. Any changes during construction must be approved as soon as they are made and before any more building continues. A Horticulturist or Facilities personnel must be present during the construction process.

All structures must follow safety guidelines and must be accessible from at least 3 sides for proper plant care. Structures may not have features that require climbing to access plants.

Any equipment that is desired to be brought into PGF that is not part of an existing greenhouse/growth chamber facility/structure must be inspected and pre-approved prior to placing or installing in PGF. Approval is to be made by an authorized PGF mechanical expert (e.g., PGF Maintenance Lead, Facilities Electrician, or Facilities Director) and Greenhouse/Chamber Manager & Safety Officer.

Guidelines for Equipment Use

The Danforth Plant Growth Facility team members use multiple types of equipment to perform various tasks. Some equipment is made available for use by Danforth and external lab personnel who work in the PGF, but prior to use, training is



required, and permission must be granted by a PGF Manager or authorized Facilities member. Other equipment will be for PGF use only and is not available for common use. Please see the PGF equipment lists below.

Requires Training and Permission Before Use:

- Manual pallet jack
- Electric pallet jack
- Vertical reciprocating lift (VRC in C-Range)
- Soil mixer
- Forklift
- Fume hood (Pesticide room in PGF-B only)

For Plant Growth Facility Staff Use Only:

- Water valves (in all greenhouses and growth chambers)
- Argus control boxes (greenhouses)
- Electrical control boxes (greenhouses or chambers)
- Conviron Control Boxes (Chambers)
- Scissor lift
- Ware-washer
- Scaffolding
- Ladders
- Thresher (in Greenhouse G16-B)
- Autoclave (in Greenhouse G16-B)
- Fertilizer tanks or injectors in the greenhouse or chamber areas
- Pesticide sprayers/tanks

For any questions about equipment training or usage, please contact Mary Lyon (mlyon@danforthcenter.org) or Tara Oehler (toehler@danforthcenter.org) of the PGF Operations Team.

Scheduling Time in PGF Common Work Spaces: Infinity X

Infinity X is the online reservation system we use for our potting rooms and work areas. This allows flexibility in scheduling. With a reserved work area, users know there will be room to do their work according to their schedule.

Workspaces which can be reserved include:

- Main Potting Room (5 seats plus 1 seat with microscope)
- C-Range Basement Potting Room (6 seats)



- PGF-B Potting Room (4 seats plus 1 with microscope)
- PGF-B Pesticide Room (must have WPS handler training and get approval)

Logging on:

To access Infinity X, click [here](#). External Users will need to register and create an account in Infinity X to access the PGF workspace reservations. Instructions on how to register should be included in the new external company onboarding process.

Menu:

- *Dashboard*: This page will show our site, Danforth Plant Science Center Plant Growth Facility. It will list your upcoming reservations and instrument usage.
- *Calendar*: This page shows a calendar view of your main instrument uses.
Instruments: This lets you view the entire list of Danforth Shared Resources. To find or filter for PGF resources, you can select the Plant Growth Facility dropdown on the category filter. You can access the reservation calendar for a resource by clicking on the “Schedule” calendar icon on the righthand side.

Making Reservations:

Start in the *Instruments* page of the DDPSC Shared Resources site in Infinity X. To quickly find the PGF workspaces, select *Plant Growth Facility* in the Category dropdown menu. You will then be able to view all of the workspaces available for reservation in the PGF. To reserve your timeslot, click on the “Schedule” icon on the right of the location you would like to reserve. A calendar view will appear for that workspace. Select the timeframe you would like to reserve. A popup window will appear that should autofill with the correct information linked to your lab. Click “Save” to make the reservation. Another window will appear asking you to confirm. Click “Continue.” The reservation should now successfully appear in the calendar. You should receive an email that your reservation has been approved.

Note: All PGF workspaces are free to use and included in the space rental. If you have trouble accessing or booking any of the reservation systems, please reach out to a PGF manager for assistance.

Cancellations:

If you need to cancel a reservation, go to the calendar and click your name on its reservation timeslot. Click “Delete” icon and then “Delete”.

General Reservation Rules:

- Reservations can be booked in 30-minute intervals.



- Reserve only the time and the dates you plan to be in that location. Many people are using these areas and need to know the space is not in use when they arrive.
- Potting rooms and works spaces have a 6-hour time limit and can be reserved up to 60 days in advance. Potting rooms are stocked with supplies needed for the growth locations closest to it.
- If you are loading/unloading the Phenotyper and plan to use the Main Potting Room, please reserve all seats during that time so others know they will have room to work.
- All areas can be booked up to the start time of the reservation. Make sure that you still put your time into Infinity X so that we can track the number of users and so a space does not become needed by more than one person.
- Some locations may require approval before a final reservation is made, such as the PGF-B pesticide room.
- If the time of your reservation needs to be altered for any reason, a greenhouse staff will notify you.
- Any users who have not completed their yearly WPS safety training will not be allowed to make reservations.

Creating a Plant Transfer Record (PTR)

All users must create a PTR* when any plant material is placed into the facility or transferred from one area to another. This applies to both reserved and multi-user growth spaces.

PTRs may be created on any computer [here](#). To print your label, you must do it at one of the PTR computer stations. Computers are in each of our three potting rooms (Main Potting Room, C-Range Basement Potting Room, and PGF-B Potting Room). To create a PTR, users must have already received their approval email for their space request. They will need to know what activity code they are operating under and where the plants are designated to be placed.

Use these computer stations to create a PTR and print out a barcode tag. One barcode tag must be placed in each plant container greater than 4.5" and in each flat. PTRs allow the PGF staff to track the owner of each plant and to bill for space usage. Therefore, it is critical that all researchers and clients use the PTR system. **Plants which do not have a PTR record may have services withheld or may be discarded entirely.** Continued non-compliance will result in the suspension of services.



Users should check their crops at least once weekly. Forgotten plants in the PGF which are no longer needed limits space and resources. If your plants are in a growth area, they will be charged for the space regardless of if they are actively growing. You should not check out the PTR until the plants are no longer in a growth area.

*CassavaTracker barcoding system may be used in place of PTR system in reserved spaces. Multi-User houses must still have a PTR associated with the tray.

PGF Crop Plant Care Protocols

Plant Care Protocols may be found on the DDPSC website under the PGF Resources section (click on Plant Care Protocols). Please email the Horticulturists to ensure you have the latest version. If you have any questions regarding a crop protocol, please reach out to the PGF Managers via email.

Environmental Data

The PGF collects the following environmental data through the climate control system. Data is stored by the PGF for a minimum of 3 years and available to the client through the PGF Portal or by request.

- Outdoor Climate Data
 - Temperature, Relative Humidity, Light (W/m² & PAR)
- Greenhouse and Growth Chamber Climate Data
 - Temperature, Relative Humidity, Light Intensity (PAR), Setpoint Schedules, Daylength, DLI
 - Greenhouse and Growth Chamber Automated Equipment Positions and Run Times

Chemical & General Safety

The PGF team is responsible for operating the greenhouse in a safe manner. This includes operating under the EPA's Worker Protection Standards (WPS) and handling pesticides and other chemicals in accordance with all federal, state, and local regulations. This is a unique challenge in a facility available to its users 24 hours a day, therefore requires a great deal of communication and cooperation between staff members and users.



We are committed to making information available about the chemicals we use. A pesticide application record manual is posted in the Main Potting Room. Safety Data Sheets (SDS) and copies of labels are available in the same location.

To ensure compliance with all appropriate regulations, **all PGF users must receive permission from the EHS and PGF Managers prior to chemical applications of herbicides, fungicides, and other regulated chemicals in a chamber or greenhouse.**

All work in PGF areas should be associated with an approved IBC (Institutional Biosafety Committee). For more information regarding IBC, contact Mindy Darnell, EHS Director/Biosafety Officer.

All regulated biological material must be approved and permitted by the USDA. All permits must be submitted to Brook Schmitt (bschmitt@danforthcenter.org) in the DDPSC EHS office.

Growth Chambers and Greenhouses may exhibit signs with the terms, "Authorized Personnel Only," "USDA Regulated Materials," and/or "Doors must remain locked." All signs must be adhered to. No one is to enter these areas unless he or she has been authorized to do so. Furthermore, growth spaces with permitted material are required to have these signs unless directed otherwise and all individuals who enter this space must have authorization and training on working with regulating materials.

View fume hood document: [Fume Hood Pesticide Use](#)

View biosafety manual: [DDPSC Biological Safety Manual](#)

Faculty members are responsible for their staff's safety compliance in the Plant Growth Facility. Users are responsible for working safely and keeping the facility safe for others. This includes learning emergency procedures (e.g., fire evacuation), and location of phones, fire extinguishers, safety shower/eyewash stations, and first aid kits.

During severe storms/tornados, employees in the A building should seek shelter in the Main Auditorium (also marked as a Tornado Shelter), employees in the B building should seek in the lowest level of B Building (Growth Chamber area), and employees in the greenhouses should seek shelter in the C-Basement.



In the event of a fire, employees in either chamber area, the Main Potting Room, or greenhouse A, B, or B West ranges should report outside Main Loading Dock. Employees in Greenhouse C or C-Basement should report to the hill above the retention pond.

Eating anywhere in the PGF is strictly prohibited for safety reasons. Only drinks with secured lids are allowed in the potting rooms and corridors. Do not bring drinks inside the greenhouses or chambers. Wash your drink bottles regularly. There are designated drinking fountains, water coolers, and sinks with potable water. Do not use sinks labeled “non-potable” for drinking or washing food/drink dishes.

See the Sr. EHA Manager (Jim Cox) or the PGF Safety Officer (Mary Lyon) with any specific questions.

Pesticide Safety

PGF staff will notify users of an upcoming pesticide application (typically every Monday). This will cover all pesticide applications for that Monday through Sunday. Users are prohibited from entering any growth area that has been sprayed prior to elapsing of the Restricted Entry Interval (REI); this is typically a 4–12-hour period from the end of the application. **Users are also restricted from entering any area, such as corridors, during an active pesticide spray.** EPA-approved NO ENTRY signs will always be on doors of treated areas, indicating that the restricted access is currently in effect. Users can access ranges not being sprayed through the badge-entry doors. **Users must abide by these signs whenever posted.**



These signs will be taken down after the restricted entry interval (REI) has passed. Although the control agents used range widely in their toxicity, it is prudent for users to assume that all pesticide applications are potentially hazardous. Individual greenhouse compartments or entire ranges that have been treated with pesticides will be temporarily locked to prevent entry until the REI has expired.

Violation of entry restrictions by a user (including faculty) is strictly prohibited and may result in suspension of PGF use privileges.

Storage:

Storage in the Plant Growth Facility is very limited. Items left lying around or otherwise improperly stored pose a safety hazard and are unsightly. *Contact the*



Operations Manager if you need to store an item. No items may be stored in greenhouse corridors. Do not use the ledges along the windows for storage. Items found in these areas will be removed and discarded after a determined amount of time.

Only chemicals used for greenhouses or chambers may be stored in the pesticide storage room. All containers should be labeled, including those containing only water. Pesticides for research use, either concentrated or in final solution (such as herbicides for screening), cannot be stored in the greenhouse.

Plant Bio-Waste Program (Orange Receptacles)

General Information:

- The Danforth EHS Team and PGF Operations Team work together to maintain and adhere to all assigned USDA permits and the disposal rules stated in these permits.
- To meet proper disposal regulations, DDPSC goes through Hummert International, St. Louis for plant-waste devitalization of regulated plant material. Hummert holds a USDA Compliance Agreement in order to be able to remove regulated waste.
- Hummert picks up full carts at approximately 6:30 and drops off empty carts at approximately 9:30 on Monday, Wednesday, and Friday mornings. Times are subject to change.
- If your plant material is chemically treated or pathologically treated, you must follow your lab specific IB agreement to dispose of these materials. Contact Mindy Darnell with any questions.
- **Due to safety concerns, no one is allowed in the Bio-Waste Room other than the Plant Growth Facility staff.**

Orange Cart/Tub Protocol:

- All plant waste (transgenic or not), including seeds and soil, material in greenhouses and chambers, material swept off the floor and tabletops, etc. must go into an orange receptacle.
- Stakes, pots, trays, etc. used for growing plants are either washed by the Operations Team or disposed of in orange receptacles (see page 5 or white board in the Main Potting Room for which to keep to wash).



- After emptying a bag of new soil, the empty bag can go in the general trash bins lined with black contractor bags.
- **Transporting bio-waste material outside the Danforth facility to or from a different building is strictly prohibited.**
- Carts labeled as “K-cart” are for general plant waste. Carts labeled as “Lab K-cart” are only for disposal of material from a laboratory setting.
- **Do not overfill carts or tubs.** Please contact a PGF staff member for guidance if unsure of the cart’s weight.
 - Carts should only be filled three (3) inches from the top with lighter plant material. Pack down lighter material as much as possible as you discard to maximize space.
 - Carts should only be filled about a quarter to halfway (sometimes even less) with compact, heavy material (Turface, wet soil, sand, etc).
 - **General guideline:** If the cart is difficult to lift from the handle, it is too heavy.
- **The Operations Team will not move any overfilled carts due to the potential for injury** and Hummert will not accept any carts or tubs that are too heavy or too full. The lab responsible for the overfill will be notified and given the choice to correct it themselves **or be billed** for an Operations Team member to take care of it.
- Orange tubs have white mesh bags and a plastic liner. Pull these down on the outside periodically as you dispose of plant waste to ensure proper closing.
- Tub should only be filled five (5) inches from the top with lighter plant material. **Do not discard heavy material (Turface, wet soil, etc) in tubs. Only discard heavy material in carts.**
- The operations team will check orange carts and tubs throughout the day, pick up full receptacles, and replace them with empty ones. **Remember, no one other than PGF staff is allowed in the Bio-Waste Room.**

Orange Trash Cans for Chambers and Greenhouses:

- There are orange trash cans with lids in each greenhouse and throughout the chamber areas.
- Orange trash cans are for plant waste, soil, and seeds only. Do not throw non-plant waste in the orange cans.



- Empty the orange trash cans from your greenhouse(s) on a regular basis by either dumping it directly (no bag needed) into an orange cart or tub or, if concerned about pests or other things needing to be contained, by tying the liner and throwing it away and replacing the old liner with a new one. Do not overfill cans.
 - If there is an orange can in a growth space designated for waste containing regulated pathogens, this liner must be tied closed **before** leaving the workspace and the whole bag must be discarded in an orange tub or bin.
- If you are intending to use a cart and there is not a cart available, use orange trash cans. In this situation, when the can is full, securely tie the liner closed and place the full bags where the cart would normally be staged. The Operations Team will gather the bags and place them in a cart once an empty cart is available.

Note:

- **Please dry down plant material and growing media as much as possible before discarding!**
- **If a project requires special waste handling procedures that have been reviewed and approved by the IBC, then those procedures must be followed.**

Requests:

- Researchers should request special-ordered carts or tubs for large discards as soon as possible. Special orders are needed if you expect to fill more than one cart during discard. If you fail to make a request, you may have to wait to discard until there are enough orange receptacles.
- You may request orange carts [here](#) or email requests to Tara Oehler, copying Mary Lyon. Include the number of carts or tubs needed, date for delivery, and greenhouse/chamber location.
- Do not use anyone else's special ordered cart or tub.



Contact Information:

Mary Lyon: 314-249-7343; mlyon@danforthcenter.org

Tara Oehler: 618-541-8263; toehler@danforthcenter.org

Restricted Access/Quarantine Areas

Some areas may have restricted access due to the presence of viral diseases, intellectual property, or other factors. Only authorized personnel are allowed in these areas. Other policies/protocols for working in these zones will be posted on the doors. It is the responsibility of the user to read, learn and follow all special procedures related to restricted access areas.

Policy Violations

Users of the facility are responsible for learning and following these policies. PGF Management will communicate policies and notify users if they are in violation. Policies may be modified or updated as necessitated. Any changes will be promptly communicated to PGF users.

Repeated or deliberate violations of these policies will result in PGF services being suspended and/or a reduction in allocated space.

PGF users and staff are accountable for interacting in accordance with DDPSC values. It is everyone's responsibility to familiarize themselves with and adhere to DDPSC PGF guidelines and rules and maintain proper ethical conduct.

