

# CSU Plant Growth Facilities

## FY 2017 Greenhouse Use Policy

Effective September 1, 2017

### **Introduction and Mission Statement**

This document is intended to define policy for the Plant Growth Facilities (PGF), inform facility users, and serve as a guide for daily operations and procedures. This document is subject to review on an annual basis and approved by the Greenhouse Steering Committee prior to release.

**Introduction:** PGF (formally known as University Greenhouse) manages the daily operation and services of the University Greenhouse and University Greenhouse South (A Biosafety Level II Greenhouse (BSL2)). Our main facility consists of over 22,000 ft<sup>2</sup> of greenhouse space including 7 research bays, 14 Growth Chambers and a Conservatory. Our South BSL2 facility contains 6 smaller bays totaling 6000 ft<sup>2</sup> and a new Growth Chamber 'Hotel' which can accommodate up to 26 chambers.

PGF currently staffs 2 full-time employees a Greenhouse Manager (Tammy Brenner) and an Assistant Manager (Paul Freebury), a part-time Research Associate (Dianne Schroeder) and 2 students.

**Mission:** To provide a professional plant science related research support and facilities for Facility, Staff and Students at Colorado State University. We are committed to providing a quality research environment by promoting a clean working environment, experienced staff and aggressive Integrated Pest Management approaches. We offer a diverse plant collection in our Conservatory available for educational needs and public enjoyment.

**Goal:** To provide a clean, well-running research greenhouse environment research and teaching purposes.

### **Contact Information & Closure Information:**

Facility Physical Location:  
1271 East Dr.  
Fort Collins, CO 80523

### **General Inquires, questions, concerns:**

**E-mail:** [CAS\\_greenhouse@colostate.edu](mailto:CAS_greenhouse@colostate.edu) (allow 48 hours for reply)

**Phone:** 491-7140 (to reach Greenhouse Manager or staff)

**Office Hours:** PGF staff is available 8:30-9:30 & 3:00-5:00 and are available by appointment

**Policies, Procedures & Updates, PGF website:** <http://plantgrowthfacilities.agsci.colostate.edu/>

**For Reservations/space requests:** Trellis: <https://colostate.trellis.asc.ohio-state.edu>

**CSU Police:** 491-6425 **Emergencies:** 911

**CSU Facilities Dispatch** (*non-emergencies facility issues*): 491-0077

**Environmental Health and Safety** (*chemical spills and contamination*): 491-6745

In the event of an emergency closure, such as severe weather, all non-essential personnel must vacate the greenhouses and campus. In extended periods of closures, the greenhouse manager is recognized by CSU as essential personnel and will complete emergency watering and plant care. No experimental treatments will be applied.

## **Trellis Greenhouse Management System**

*Trellis* is an online tool that allows automation of research requests, User identification and space management. Once a member, users can register in their lab, reserve research space, request materials and track Worker Protection Standard Training (WPS).

Become a Trellis Member, request space and gain greenhouse access:

- Access Trellis website: <https://colostate.trellis.asc.ohio-state.edu>
- On Dashboard, request to be a member
- Once membership is approved (within 24 hrs.), join affiliated lab, reserve greenhouse or growth chamber space and request materials
- Manager will review reservations weekly, email you if reservation is accepted or if it needs editing and schedule ½ hour orientation to cover:
  - Basic WPS training and be on list serve for full training
  - Specific greenhouse/space needs and assigned location tour
  - Greenhouse Policy review (signed and dated)
  - Confirmation of account number
  - Greenhouse access

A link to Trellis User Guide can be found at:

<http://plantgrowthfacilities.agsci.colostate.edu/training/>

**Space Reservations:** Once a member of Trellis, users can reserve greenhouse and growth chamber space and request materials/services during the initial reservation (*Trellis 2.0 will allow users to modify space, materials and services at any time*). A link to the User Guide can be found on our website or at this link:

<https://plantgrowthfacilities.agsci.colostate.edu/files/2014/04/Trellis-User-Guide.pdf>

- From the 'Dashboard', click on Plant Growth Facilities 'Details'
- On 'Reserve Space' page, enter desired dates, click 'Find Space' (*note: Trellis currently only accepts reservation through December 2017*)
- A list of available space will populate-here you can filter configurations (greenhouse, growth chamber & temperature) or choose available bay, click 'Reserve'
- On the 'Create Reservation' page, labs can customize the crop, customize services and request materials
- Required fields:

- 'Crop'-if crop is not listed, click 'New Crop' and add crop
- Square footage-
  - **1 bench: 210 ft<sup>2</sup>**
  - **1/2 bench:105 ft<sup>2</sup>**
  - **¼ bench (*minimum*): 53 ft<sup>2</sup>**
- Click 'Create Reservation' to complete

Reservations are reviewed on a weekly basis, if further communication is requested PGF will contact you. Otherwise, a confirmation email will be sent.

Verbal or email reservation requests will not be accepted. Please be advised, greenhouse space fills up quickly and bench/growth chamber space is not guaranteed.

**Space Beginning and End Dates:** PGF understands research projects don't always go as planned, however Space requests must be made on *Trellis* a minimum of 2-weeks in advance. Users requesting greater than ½ bench are encouraged to email ([cas\\_greenhouse@colostate.edu](mailto:cas_greenhouse@colostate.edu)) at the beginning of the planning stage to discuss plans.

An end date (*maximum of one year*) is required in order to complete a reservation in *Trellis*. Unless advance arrangements have been made, users are required to vacate their assigned space by the designated end-date.

Upon vacating space, users are required to clean-up their assigned bench of all plant material, equipment, tags, pots, soil, etc. *and* notify PGF staff they have vacated their bench space. *Users failing to clean-up bench space and notify PGF will continue to accrue bench space fees.*

**Annual Renewal of Space Requests:** To monitor accurate billing, greenhouse access and greenhouse maintenance & repairs, an annual space request on *Trellis* is required. This allows PGF to confirm account number and reservations and monitor key card access. If your lab occupies the greenhouses on a full-time, year round basis, please review your space request at the beginning of each semester.

Annual maintenance, repairs and sanitation of all greenhouses are essential in ensuring a properly functioning research facility. PGF will request users to temporarily vacate assigned greenhouse for a *minimum of 2 business days* to allow for maintenance & repairs. PGF will give a minimum of 2 weeks' notice and will assist in crop relocation. Please plan your research accordingly.

**Space requirements:** For ease of space allocation and efficiency in billing, there is a *1-month minimum* stay and a *minimum charge* of 53ft<sup>2</sup> (25%). Users may split space and costs with another user, but PGF will bill one account/user. Usage fees will be assessed the 1<sup>st</sup> & 3<sup>rd</sup> week of month and averaged.

## **Rates, Fees and Other Charges**

University Greenhouse and University Greenhouse South are available for rent by CSU affiliated researchers, students or clubs. As space permits, greenhouses are available to non-CSU affiliated researchers, clubs or non-profits at commercial rates. Greenhouse user fees/rates cover a portion of employee salaries, facility maintenance, greenhouse supplies and operating costs.

**Account Numbers:** All users are required to provide a valid CSU account number before occupying an assigned space. Users paying *without* a CSU account number must provide a valid Credit Card number to remain on file. Accounts are charged monthly unless other arrangements have been made.

### **FY 2017 Rates**

**Greenhouse Bench Space Rates:** Greenhouse bench rates are flat rates across all greenhouse bays & benches. A 20% discount will be applied to Labs occupying 100% of a greenhouse on an annual basis (*please discuss details with PGF Manager*). A 2-5% annual rate increase should be expected as PGF expenses are reviewed in more detail.

#### **Monthly Greenhouse Rates:**

Main University Greenhouse: **\$.48/ft<sup>2</sup>** (approx. \$101/month/bench)

South (BSL2) Greenhouse: **\$.48/ft<sup>2</sup>**

Non-affiliated Users: **\$2.50/ft<sup>2</sup>**

**Growth Chamber Space:** PGF contains 22 growth chambers of varying sizes. Rates are charges on a Ft<sup>2</sup> basis and cover Tolin Service Contract, annual bulb replacement and PGF maintenance.

#### **FY 2017 Growth Chamber Rates**

| <b>Chamber model &amp; number</b> | <b>Rate</b> |
|-----------------------------------|-------------|
| Percival #2                       | \$84        |
| Conviron 3,4,5,6,10               | \$147       |
| Conviron 7,8,11,12,13             | \$158       |
| EGC #9                            | \$315       |
| Conviron #15,16,17,20, 21, 22     | \$157       |
| Conviron #14, 18 & 19             | \$157       |

### **Other Fees (details page 7):**

Student labor (*watering, fertilizing, pot washing, etc*): **\$12/hour**

Admin. Pro (*project design, installation, etc*): **\$25/hour**

### **Services Provided by PGF Staff included in Rates**

PGF provides several services to current Users included in rate. These services are designed to support the users research by providing a clean and well-running facility. The services which PGF provides include:

- Pest management based on IPM principles, all management costs (bio control, pesticides, etc.) are built into the user fee. *Fees may be applied if there is a special request pesticide or a recurring pest control application*
- Daily facilities monitoring and environmental data download per request
- Environmental control of all greenhouses and growth chambers including temperature, humidity (if possible) and supplemental lighting
- Repair and maintenance of greenhouse facilitates (shade, pad wall, exhaust fans, lighting, etc.).
- Hose and wand repair or replacement
- Washing and UV sterilization of 1 and 2 gallon pots, conetainers and webbed trays

**Integrated Pest Management Program (IPM):** The greenhouse staff makes both preventative and curative pesticide applications in all PGF buildings.

IPM Practices include:

- **Sanitation** is key to healthy plants. The use of clean and sterile pots, media and supplies is essential. Limiting introduction by inspecting incoming plants and quarantining/making pesticide applications before introduction is necessary.
- **Scouting and recording** pests and disease populations can prevent insect and disease outbreaks
- **Pesticide** rotation schedule with various modes of action help prevent resistance.
- **Biological Controls** are used during the prevention and treatment phases. PGF applies biological controls at regular intervals to maintain a population of beneficial insects.

### **Routine Sanitation Services**

- Annual greenhouse solarization and power washing of greenhouse bays
- Monthly cleaning of trench drains
- Weekly sweeping of warehouse, ventilation corridors, greenhouses and hallways.
- Weekly trash and compost disposal
  - Trash and compost bins are located in each greenhouse bay and in corridors. Plant material/soil can be *composted*. Please to not put trash in compost or fill bins completely full (very heavy to dump). Large amount of trash or plant material can be dumped directly into dumpsters located behind the warehouse.
- Autoclaving services for plant material and waste
  - Material must be bagged in specific Autoclave bags, sealed with Autoclave tape and

placed in 'To Be Autoclaved' in warehouse or by Autoclave in South houses

### **Research Related Materials/Services**

- Tomato Mosaic Virus (TMV) testing
- Pasteurization or autoclaving of media/soil steam as requested via email
- Assorted specialized research equipment available for check out at the office

**Labs/Equipment/Storage Provided** (*Requested can be submitted during initial **Trellis** reservation stage, otherwise please submit a special request form via email as soon as possible.*)

- Warehouse Storage-*short term only*
- Walk-in cooler
- Soil Grinding room
- Drying Oven

**Supplies Provided** (*located in warehouse and/or at potting benches in corridors*)

- Promix potting mix (*warehouse*)-sign out required
  - *Max. of 15 bags/ semester to current and active greenhouse users only*
- Soil amendments (*Vermiculite, Perlite, Greens Grade, etc.*) by the scoop (*warehouse*)
- 1 and 2-gallon nursery pots (*warehouse*)
- Conetainers and racks (*warehouse*)
- Webbed flats (*warehouse*)
- Bamboo stakes of various sizes (*potting bench*)
- White plant labels (*potting bench*)
- Nitrile Gloves (*potting bench*)
- Hand sanitizer (*potting bench*)

### **Fee-for-Service & Labor Rates-Services not covered by User Fees**

PGF is available, *as time permits*, to assist with research needs. Fees are based on the level of experience required to do the job and are charged at a minimum of **1 hour**-unless otherwise noted. PGF will make every effort to accommodate requests, however, PGF is not obligated to assist in research projects. *Requested can be submitted during initial **Trellis** reservation stage, otherwise please submit a special request form via email as soon as possible.*

**Project installation: \$25/hour** Design & installation of special experimental equipment or specialized automatic irrigation, will be charged at a rate of **\$25/hour** (*includes materials*). If special materials are required, additional fees may apply.

**Specialty Pot Washing: \$12/hour** Pot washing of specialty sizes (*4", flats, misc. pots, etc.*) is available at a rate of **\$12/hour**. Specialty pot washing can be requested on Trellis during initial reservation request, otherwise e-mail PGF to request cleaning and leave specialty pots on your assigned bench. Upon completion, PGF will return clean pots to your bench.

**If lab chooses to wash pots independently:**

- Keep dirty pots on assigned bench or warehouse storage area until ready to wash
- Do not stack dirty specialty pots at washing station
- If UV sterilization is required, notify PGF with UV request. Staff will complete this step for you (*free of charge*). Leave clean pots on drying rack and label with blue tape. PGF will UV them that day and return them to labs assigned bench.

**Manual Irrigation: (\$12/hour)** Users are encouraged to be fully involved in their research and full-time watering is not offered as service. Weekend and holiday watering are available for fee at **\$12/hour** rate with a minimum of a half-hour (**\$6**) charge.

**Automatic Irrigation: (\$25 flat rate)** PGF can install an automatic drip irrigation system on assigned bench. There is a **\$25 installation fee** which includes parts and labor, *and* an annual **\$25 Service fee** which covers troubleshooting, maintenance and repair.

**Fertilizing: (\$12/hour)** Weekly fertilizing with basic stock solution is available for fee at **\$12/hour** rate with a minimum of a half-hour (**\$6**) charge.

**Short-term Plant Care and Maintenance:** In an emergency or other short-term situations (vacations, conferences, etc.) users may request basic care and maintenance (watering and fertilization) of research material with standard labor rates applied (\$25/hour). Please make arrangements with PGF as far in advance as possible to ensure PGF is well-staffed to accommodate research needs.

**PGF Stock Room (*Located across from Main Office (Room 115):*)**

Hours: Monday-Friday 8:30-10:30 and 2:30-4:30

PGF has a small stock room containing basic planting supplies. *During store hours*, users can pick up items in stock room and charge items to account through the office. If you are unable to purchase during store hours, please contact PGF (via email). If time permits, we can gather requested supplies and charge to user account.

**Supplies available for purchase in Stock Room:**

- 1020 flats with or without holes
- Assorted pot sizes
- Flat liners of various configurations
- Pots larger than 3 gallons
- Pot labels, various sizes and colors
- Pathogen ImmunoStrip tests

**Soil Amendments available for purchase in Warehouse:** Items must be signed out for on sign out sheet provided in warehouse.

- Vermiculite
- Perlite
- Peat Moss
- Sand

- Gravel
- Greens Grade/Turface
- Granular fertilizer

**Special Orders:** Researchers are encouraged to purchase materials through their labs. PGF does not get a discount on greenhouse supplies. If PGF can acquire materials through our main vendors (*American Clay Works, Hummert, Plant Ranch*) a special order request (found on website) must be submitted by the 1<sup>st</sup> or 15<sup>th</sup> of each month. Verbal or e-mail special order requests *will not* be accepted.

**Plant Requests:** PGF Conservatory contains a diverse plant collection which can be signed-out for classes (via a special order request). In the event the Conservatory does not have a specific species, color or quantity; PGF can attempt to source materials through outside vendors. Users are responsible for incurring all costs of material, plus a 10% surcharge. Delivery fee to class is an additional \$6.

### **User Responsibilities**

PGF makes every effort to accommodate the needs of the users. However, the success of the research depends on the Lab/User. This section covers the responsibilities of CSU employees and students.

### **Warehouse Storage Space:**

- Warehouse Storage space must be well-labeled with Lab Name, Contact Name, Telephone Number & Date the space was last cleaned/organized
- Users are required to clean/ tidy up area at the end of each semester
- Materials must fit into allocated warehouse space. *Items on the floor or in other areas are subject to disposal at the discretion of the PGF Manager*
- Only materials/supplies for greenhouse use may be stored in the warehouse. No storage of field equipment/supplies or non-greenhouse related supplies and equipment- PGF is a research greenhouse facility and has limited storage space

### **Plant Material:**

- It is the user's responsibility to notify PGF (*via email or phone*) of any incoming live plant material that will be brought into the greenhouses and schedule a plant inspection a minimum of 1 business day in advance. PGF staff will inspect incoming live plants for pests, diseases and weeds before greenhouse entry. PGF has the right to quarantine plants before entry.
- Pots must be of adequate size to support the expected size of the plants in order to reduce watering requirements and potential drought stress.
- Fill pots 80-85% full (*or just above the top*) after settling in order to provide sufficient headspace for watering.
- Up-pot plants if toppling over or pot-bound.
- Stake & prune plants to prevent breakage and toppling, and to encourage plant health.
- Plants must be spaced far enough apart (*minimum of 6" spacing*) to allow for adequate airflow, insect & disease prevention and efficient watering.



**Experimental Setup and Tools:** Users must receive permission from greenhouse manager before altering any part of the greenhouse or equipment. Please discuss with PGF experimental designs in advance.

- Greenhouse users are financially responsible for all aspects of project-specific greenhouse or research equipment.
- Never unplug anything that has been plugged into an outlet
- *Weekly* clean-up of bench space and experimental area is required
- Adjusting Wadsworth environmental controls are PROHIBITED. Please ask PGF for assistance if adjustments are required

**Terminating Experiments:** Upon completing an experiment, please be sure to complete the tasks below.

- Clean and sweep benches, under bench space and surrounding spaces
- Discard large amounts of harvested material from completed experiments directly in outdoor compost and trash bins
- Place 1,2 gallon pots, conetainers and webbed trays at end of bench to be picked up by PGF staff. Discard all others. *Please do not "Donate" other sizes*
- Remove all other supplies and materials from bench space
- Contact greenhouse manager ([cas\\_greenhouse@mail.colostate.edu](mailto:cas_greenhouse@mail.colostate.edu)) upon completion to avoid additional charges

**Greenhouse Best Management Practices:** Greenhouse procedures are designed to promote the growth of high quality and healthy plants. This is a shared facility and users should be aware that their actions can have a cascade of effects on other plants and people in the greenhouses.

Best Management Practices include:

- Keeping doors to the greenhouses shut at all times-with the exceptions for moving large amounts of plants/plant materials through a greenhouse area. Do not prop exit doors open.
- Load benches evenly-rolling benches tip if loaded unevenly.
- Avoid placing tall plants directly under the High Intensity Discharge (HID) lights.

## **Communications**

With over 40 Labs and over 100 Users, mass communication is the most efficient way to communicate. Please read announcements, notify students and respond accordingly. All communications should be directed through [Cas\\_greenhouse@mail.colostate.edu](mailto:Cas_greenhouse@mail.colostate.edu) or through Trellis.

PGF will communicate, via E-mail or Trellis, regarding:

- Pest outbreaks and pesticide applications
- Equipment failures and scheduled greenhouse maintenance
- Policy updates
- Any other topic PGF must notify users of

PGF relies on the users to notify us of areas of concern including:

- Plant care Issues including pests, diseases, fertility, environmental needs, etc.

- Experimental needs for future studies (high humidity, no pesticides, 24 hrs. light, etc.). This should be completed while reserving space on Trellis, but should also be discussed in person prior to starting.
- Greenhouse Needs/Concerns such as alarms, malfunctioning equipment, power failures or other oddities.

## **General Safety**

Safety at PGF is a high priority. PGF makes every effort to ensure the facility is safe and operational. Safety information, including Safety Data Sheets (SDS) and pesticide labels can be found in the Main office (*room 115*) located in the Main University Greenhouse. Please notify PGF immediately if there is a safety concern. It is the users responsibility to be accountable for their actions, please adhere to the following safety policies:

- Closed-toed shoes must be worn while working in greenhouses
- No food or drinks are allowed in greenhouses
- No smoking is allowed in the greenhouses or in university buildings
- No unapproved use of chemicals in the greenhouses under any circumstances
- Required annual training of Worker Protection Standard (WPS)

## **The Worker Protection Standard**

The WPS is a federal regulation intended to reduce the risk of pesticide exposure and injuries among agricultural workers who are exposed to pesticide residues. The WPS requires PGF to guarantee that anyone utilizing the greenhouse facility receive basic pesticide information before they work with treated agricultural plants.

- Access to the greenhouse is dependent on successful completion of the WPS training, PGF will deny access if training is not completed.
- Pesticide application list is posted at the Central Posting Area for at least 30 days after the restricted-entry interval expires, or at least 30 days after the end of the application.
- The pesticide application list will include:
  - Location and description of the area to be treated,
  - Product name, EPA registration number, and active ingredient(s) of the pesticide,
  - Time and date the pesticide is scheduled to be applied, and
  - Restricted-entry interval for the pesticide.

## **Experimental Products**

Plant Growth Facilities does not possess a license for the application of experimental pesticide or herbicide products. No applications of experimental chemicals may be applied in University Greenhouse, University Greenhouse South or PGF growth chambers. See the Weed Lab personnel if experimental chemical use is needed. A link to their website can be found below: <http://weedsience.agsci.colostate.edu/>

## **Insect and Disease Use Policy**

Much of the research which is conducted in the PGF greenhouses involve the use or study of

insects and disease. If these are a part of a lab's research, it must be documented while reserving space in Trellis and be discussed with the PGF Manager prior to greenhouse entry. If available, PGF isolate research in one of the BSL2 greenhouse bays to reduce contamination of other crops. As a preventive measure of a major disease outbreak such as Tobacco Mosaic Virus (TMV):

- PGF *requires* an annual TMV routine testing for all Solanaceous growers (*tomato, pepper, eggplant, etc.*) through the CSU Plant Diagnostics Clinic
- PGF will arrange for testing and notify labs and provide sample bags 2 weeks in advance. PGF will collect, label and delivery samples to the Plant Diagnostics Clinic. *\*Please use only the designated sample bags for tissue collection*
- Diagnostic lab will notify PGF & PI results via e-mail
- PGF shares the testing cost with Solanaceous users and will bill accordingly

**In the event TMV tests are positive, disposal protocols include:**

- PPE for handlers: disposable apron or Tyvek suit, disposable gloves
- Infected plant material, media, stakes, and pots must be placed in autoclave bags, taped and remain in greenhouse bay until ready to autoclave (*notify PGF staff of autoclave needs and infectious material*)
- Protective clothing (*Tyvek suits*), must be removed and placed in garbage bag before leaving greenhouse bay and disposed of in dumpster immediately
- Wash hands with powdered milk, located at sinks in both greenhouse headhouses

**In the event Infected plants cannot be destroyed:**

- Work with PGF to come up with isolation plan
- Visibly labeled plants **“TMV infected, Do Not Touch”**
- If possible, plants will be relocated to growth chamber to prevent spread
- The order of entry with infected plants should be last, after all other plants are cared for
- Protective clothing must be worn when handling plants and must be disposed of or kept in isolation area after use
- Watering must be done with dedicated watering can only, no with shared hose
- Wash hands with powdered milk after work
- Sterilize all tools and equipment with Sporocidin or 70% ethanol (*located in Stock Room*)

**Outbreaks:** Insect and disease outbreaks are unfortunate parts of a greenhouse environment. PGF makes every effort to reduce the spread of these by using sterile techniques when watering, transplanting and order of entry to greenhouses based on current disease and pest populations. We require all users to adhere to the procedures below to reduce the spread:

- Notify PGF staff of infestation. PGF will work with PI, staff & students to come up with a treatment plan
- Discard non-essential plants- bag all plant material, media and pots and dispose of *directly in dumpster*
- Sterilization of equipment, supplies and greenhouse space is essential and include:
- Spray all surfaces, greenhouse structures, doors, floors, hoses, etc. with Greenshield

- Wipe all surfaces with Sporocidin or 70% ethanol
- Soak all irrigation piping and stakes in Greenshield
- UVC treat where possible (*Only growth chambers*)

### **Hazardous Materials, Pesticide and Chemical Use**

Hazardous materials and chemicals used in experimental settings can include: pesticides, solvents, toxins, heavy metals, fungicides and many others. For general lab safety policies see CSU EHS's lab safety document:

<http://www.ehs.colostate.edu/images/NewsSpotImages/Documents/100112%20General%20Lab%20Safety.pdf>

Greenhouse users must:

- Contact the greenhouse manager before bringing any chemicals into the greenhouse or associated non-laboratory areas such as growth chambers, head houses, etc.
- The materials must not be stored in the greenhouse or in support facilities unless approved by the greenhouse manager.
- It is the user's responsibility to ensure that all applicable chemical labeling, signage, notification, transportation, storage, exposure, and usage laws/regulations are followed precisely.

PGF prohibits users from applying pesticides to assigned space. The use of non-approved pesticides can negatively impact our IPM program, pesticide rotation and neighboring studies.

If a non-pesticide chemical application is required for study, user must receive written permission from PGF Manager. In the event PGF is unable to apply pesticides, a waiver may be requested for a user to complete a pesticide application.

All chemicals used in the greenhouse must comply with all applicable OSHA Hazard Communication Standard (29 CFR 1910.1200) requirements, including those for labeling, Safety Data Sheets (SDSs), and inventories.

- Label containers with owner's name and telephone number.
- Work with the greenhouse manager to ensure that Material Safety Data Sheets are readily accessible to all employees.
- All hazardous materials and chemicals must comply with CSU EHS hazardous waste policies. Link to EHS: <http://www.ehs.colostate.edu/WHazWaste/Home.aspx>

### **Biohazard and Transgenic Plant Material**

The Principal Investigator (PI) is responsible for complying with Federal, State and CSU biosafety policies and procedures including:

- PGF Manager must be notified in prior to commencing any biohazardous and/or transgenic research conducted in PGF greenhouses

- Reporting any problems and/ or violations of the *NIH Guidelines*, Select Agent Program, Federal and State laws, or CSU policies/procedures, or any significant research-related accidents and illnesses to the BSO and IBC
- When working with recombinant DNA, all responsibilities as described in the NIH Guidelines must be met, which include timely reporting of incidents or problems to the appropriate authorities
- Transgenic, virus-infected, legally quarantined, otherwise biologically hazardous plants **must** be autoclaved before disposal
- Project personnel are responsible for:
  - Bagging material in specific Autoclave bags, sealed with Autoclave tape and placed in 'To Be Autoclaved' in warehouse or by Autoclave in South houses
  - Notifying PGF of autoclave needs
  - Properly disposing autoclaved material into dumpsters, not into building garbage cans
  - Purchasing autoclave bags for large projects
- A link to the Biosafety link & PI responsibilities:  
<http://www.ehs.colostate.edu/WBiosafety/Home.aspx>

### **Policy Enforcement Procedures**

With a facility of this size, it is essential that *all* users follow the policies set by the PGF Manager, User Committee and Steering Committee. PGF makes monthly inspections to ensure all policies are being up-held. In the event of a policy violation, enforcement will be as follows:

1. Violation Notification will be communicated via e-mail, along with a time frame for remediation.
2. In the event the situation is not remedied within a given timeline, fines will begin to accrue.
3. If situation becomes a persistent violation, the issue will be presented to the PGF Steering Committee for recommendations and actions.

## **Colorado State University Plant Growth Facilities**

3030 Campus Delivery/Fort Collins, CO 80526

970-491-7140/ [cas\\_greenhouse@mail.colostate.edu](mailto:cas_greenhouse@mail.colostate.edu)

<http://plantgrowthfacilities.agsci.colostate.edu/>



**Colorado State University**  
 PLANT GROWTH FACILITIES