

Guide to Greenhouse and Growth Chamber Policy and Use

College of Agricultural Sciences
The Pennsylvania State University

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Introduction

This document is intended to serve as a guide and define policy for greenhouse and growth chamber rental and use in the College of Agricultural Sciences University Park campus plant growth facilities.

Greenhouse management structure

Operation of the College of Agricultural Sciences greenhouse facilities is coordinated by the greenhouse manager. The greenhouse manager is responsible to the chair of the greenhouse facilities committee. The greenhouse manager will coordinate local activities as necessary with liaisons from units within the College.

Contact Information

Greenhouse Manager: Scott DiLoreto
 dsd134@psu.edu
 814-867-2965 (office)
 814-359-8853 (cell)

Emergency: Dial 911 for medical, police, or fire emergencies.

PSU Police: Dial 863-1111 to reach Penn State Police Services.

Environmental Health and Safety: Dial 865-6391 to report chemical spills or environmental contamination.

Office of the Physical Plant: Dial 865-4731 to report facilities problems (flooding, leaks) in emergency situations if the Greenhouse staff can't be reached.

Overview of greenhouse and growth chamber facilities available for rent

The College of Agricultural Sciences operates several greenhouse facilities and a plant growth chamber facility on the PSU UP campus. Greenhouse and growth chamber space may be rented for teaching and research activities by members of the College of Agricultural Sciences and with restrictions by members of other units within Penn State.

The facilities include:

Greenhouse J (8,000 ft²), adjacent to Headhouse III Building, is a modern laboratory grade greenhouse available for research projects which require precise control of environmental parameters.

ASI Greenhouses A and B (15,000 ft²) adjacent to Agricultural Sciences and Industries Building. These gutter-connected double houses are suitable for research and teaching activities.

Tyson Greenhouses A-H (40,000 ft²) adjacent to Headhouses I-III. The Tyson greenhouses are older structures but were renovated in 2015 and are suitable for most research activities and ideal for teaching.

Forest Resources Laboratory Greenhouses 211-213 (10,000 ft²) located on University Drive adjacent to Forest Resources Laboratory Building. These houses are currently being renovated and will be suitable for most research activities in 2018.

Plant Growth Chamber Facility located in the Agricultural Sciences and Industries Building Headhouse 113 and includes eight reach-in style Conviron PGR15 plant growth chambers.

Greenhouse and growth chamber space rental policies

Space requests

Individuals interested in renting greenhouse or growth chamber space should contact the greenhouse manager to determine what space is currently available and for an initial discussion of the prospective renter's particular needs. Consultation well in advance of the anticipated rental date is encouraged. After the initial consultation a space request should be submitted to the greenhouse manager. Greenhouse space will be rented on a first-come first-serve basis with priority given to members of the College of Agricultural Sciences.

Space assignments and appropriate use of space

Greenhouse space is provided at the discretion of the greenhouse manager and the greenhouse committee and is assigned based on the needs of the researcher and the currently available space. Renters requiring the highest degree of environmental control will be assigned to laboratory grade Greenhouse J space if available. Renters who require less than laboratory grade greenhouse space will be assigned to other greenhouses based on the particular requirements of the research or teaching activity. In situations where demand for laboratory grade greenhouse space is high, the greenhouse committee reserves the right to relocate Greenhouse J users if it is determined that precision environmental control is not required. Rented greenhouse space must be in active use for

research or teaching activities. It is unacceptable for a renter to hold, but not make use of greenhouse space. The greenhouse committee reserves the right to terminate a rental contract if it is determined that the space is not in active use by the researcher. Greenhouse space will be used exclusively for plant growth research and teaching related activities. Personal plants are not permitted in the greenhouses. Materials unrelated to greenhouse work may not be stored in the greenhouses.

Establishing a rental time table and exit date

The renter and greenhouse manager will agree upon a time table and exit date for each rental term. In circumstances where a project will extend beyond the agreed upon exit date, the researcher must contact the greenhouse manager as soon as possible to extend the rental term. Extensions to the exit date may not be granted if a prior commitment has been made with another prospective renter. Criteria for extending a rental term will include demand for space, requirements of the researcher and any other relevant factors.

Circumstances limiting a rental term

Certain circumstances may limit the length of a rental term. The Greenhouse manager, in consultation with the greenhouse committee, may decide to terminate a rental contract in a situation where there is demand for greenhouse space and a rented area is empty or not being actively used for teaching or research activities. The Committee may also choose to terminate a rental contract with individuals outside the College of Agricultural Sciences in a situation where there is legitimate demand for greenhouse space by members of the College. Under such circumstances a reasonable time table will be established so that any current experimental work will not be interrupted.

Rental fee structure and payment

Greenhouse space is rented on a square foot basis. The square foot based fee applies to both plants within the greenhouse and any other materials stored within the greenhouse compartment. The minimum amount of greenhouse space available for rent is 50 ft², one of the standard benches throughout most of the greenhouses. Growth chambers are rented on a daily basis. College-approved rental fees for greenhouse and growth chamber as of August 2017 are indicated in the table below. Greenhouse and growth chamber rental fees will be collected biannually in January and July.

Facility	rent fee
Tyson Greenhouse J	\$0.51/ft ² /month
Tyson Greenhouses A-H	\$0.19/ft ² /month
ASI Greenhouses A and B	\$0.19/ft ² /month
FRL Greenhouses 211-213	\$0.19/ft ² /month
ASI growth chamber, reach-in style growth chamber	\$2.00/day

Services provided to renters by greenhouse staff

At the request of renters the following services and supplies will be provided by greenhouse personnel:

- Weekend and holiday watering service for teaching crops.
- Integrated pest management service including pest and disease scouting, consultation, and biological pest control. Pesticide application service by the greenhouse staff is at the discretion of the greenhouse manager.
- Climate control and climate manipulations.
- Seasonal application of shade material (Tyson greenhouses)
- Basic greenhouse janitorial service including removal of trash, compost, and recyclable materials.
- Hoses, shut-off valves, and water breakers
- Growing containers in many styles including selected cell trays, 4"–6" pots and nursery pots
- Pot labels
- Bamboo stakes
- Reasonable amounts of field soil
- Peat-based plant growth media, vermiculite, and perlite provided at cost.
- Access to pH/EC meters and balances for fertilizer preparation
- Horticultural advice and problem solving

Additionally, there are often building materials, irrigation supplies, and other miscellaneous supplies available to greenhouse users. Inquire with the greenhouse manager.

Modification of greenhouse space

Renters are encouraged to modify greenhouse spaces to suit their teaching or research requirements. This may include the construction of irrigation systems, shading, adding or removing crop lighting, raising or lowering benches, or fabrication of other experimental systems. It is required that the greenhouse manager is consulted prior to any modification and that, at the end of the rental term, the greenhouse space is returned to the original condition.

Climate control and programming climate control computers

The greenhouse manager will work with the renter to design and maintain a suitable greenhouse climate environment for the particular project. The greenhouse manager will be responsible for programming any climate control computers and making any program changes during the rental term. Renters may request greenhouse climate changes at any time, but are not permitted to operate climate control computers.

Reporting mechanical, electrical, and plumbing problems

The renter is responsible for promptly reporting to the greenhouse manager any problems or malfunction of mechanical, electrical, or plumbing systems in the rented area. In an emergency, facilities problems should be reported to the Office of the Physical Plant at 865-4731.

Pest management

The renter will regularly monitor crops for the presence of pest organisms and respond promptly to the presence of pests. Renters should be familiar with pest and disease organisms specific to their crop and employ cultural practices which limit pest and disease severity. Upon discovery of pest organisms the renter will inform the greenhouse manager so that a coordinated response can be initiated. When biocontrol organisms are employed as a pest control method renters will work with the greenhouse staff to manage biocontrol organisms.

Pesticide application

Consultation with the Greenhouse Manager is required prior to application of any pesticide. The greenhouse staff may apply pesticide as a service to renters at the discretion of the greenhouse manager. Under some circumstances a renter may be responsible for carrying out pesticide applications and must employ a staff member holding a valid Pennsylvania Pesticide Applicators license and acting in compliance with all Pennsylvania Pesticide Control Act regulations. It is expected that renters respect posted REI signs in the greenhouse facility.

Working with transgenic and biohazardous materials in the greenhouse

Any renter working with transgenic or biohazardous plant material must be in possession of the necessary University permits and follow university guidelines regarding security, documentation, and waste disposal. Transgenic, biohazardous, virus infected and legally quarantined plants must be autoclaved prior to disposal. The renter is responsible for supplying appropriate autoclave waste bags and bagging any hazardous materials. The renter is responsible for autoclaving and subsequent disposal of such waste as required by the renter's University permit.

Working with pathogenic or invasive organisms in the greenhouse

Projects involving the intentional introduction of pathogenic or potentially invasive organisms require the special permission of the University. A proposal describing the nature of the work and provisions to prevent release of the pathogenic organisms should be submitted to the greenhouse manager for informational purposes. The greenhouse committee may require additional safeguards in addition to those required by the University which will be the renter's responsibility to implement.

Composting and recycling

All organic materials including plant debris and potting media that does not harbor invasive, transgenic, or pathogenic organisms or hazardous chemicals must be disposed of in composting bins provided in each facility. Sand, vermiculite and perlite may also be added to the composting bins. Disposal of plant material and potting mix in trash cans will not be tolerated. Please do not overfill bins. Composting bins may be moved into greenhouses to facilitate removal of plant material. All plastics, metal, and cardboard waste that does not harbor invasive, transgenic, or pathogenic organisms or hazardous chemicals must be recycled. Recycling containers for plastics, aluminum, and cardboard are provided in each facility. Contact the greenhouse manager to coordinate recycling larger quantities of material.

Sanitation and cleanliness

The renter will maintain sanitary conditions in rented greenhouse space and in common use areas. Dead plant tissue must be disposed of in a timely manner. It is expected that floors, benches, and sinks be kept reasonably clean – brooms and dustpans are provided in each greenhouse compartment. Nutrient solution tanks and swamp cooler reservoirs must be kept covered.

Storage

Some storage space is available to greenhouse users. Please contact the greenhouse manager to discuss storage options. Items left in the greenhouse without prior approval from management may be removed by the greenhouse staff.

Federal Worker Protection Standard training and Safety

It is required by the Federal Worker Protection Standard Act that all individuals working in the greenhouse environment are formally trained to recognize and avoid workplace and pesticide hazards. All PSU employees working in the greenhouse environment must take this training. Training can be scheduled for individuals and groups through the greenhouse manager or through PSU Environmental Health and Safety. A signed acknowledgement of Worker Protection training is required to be on file prior to beginning work in the greenhouse or in pesticide treated areas. More information about the Worker Protection Standard is available from the Greenhouse Manager or at <http://www.epa.gov/agriculture/twor.html>.

Safety is of paramount importance in the greenhouse facilities and it is expected that individuals behave in a manner minimizing risk to themselves and others. General guidelines for safety in the greenhouse facilities follow:

- Know the locations of fire extinguishers, emergency showers and eyewashes, phones and emergency numbers, first aid kits and chemical spill kits.
- Know the emergency evacuation procedure for your area.
- Know where to find copies of material safety data sheets and pesticide labels.
- Do not eat or drink in areas where pesticides are handled or applied.
- Avoid exposure to chemicals and dust by wearing appropriate protective equipment (i.e. gloves, dust mask, respirator, safety glasses).
- Do not create hazards such as slippery floors, noxious chemical fumes and open flames.
- A valid Pennsylvania pesticide applicators license is required to apply any pesticide in the greenhouse.
- Report any unsafe conditions to the greenhouse manager.
- Respect restricted entry interval (REI) notifications posted in areas where pesticide has been applied.