

University of Nebraska-Lincoln
Institute of Agriculture and Natural Resources
Agricultural Research Division

Greenhouse and Growth Chamber
Policies and Procedures

Approved by the Faculty Greenhouse Advisory Committee on October 6th, 2020

This document establishes the policies and procedures for the use and care of the Plant Growth Facilities on City and East Campuses. The Faculty Greenhouse Advisory Committee (FGAC) has representatives from user groups at UNL, which consists of: three (3) faculty from Agronomy and Horticulture and one (1) faculty member from each of the following academic units; Biochemistry, Biological Sciences, Entomology, and Plant Pathology. At least one (1) of these members shall also be affiliated with the Center for Plant Science Innovation and at least one (1) shall have instructional greenhouse responsibilities. Changes in this document should be submitted directly to the chair of the FGAC for consideration.

Section 1: Requesting Plant Growth Space for Research

- Requests for greenhouse and growth chamber space must be made using the online request form: <https://app.smartsheet.com/b/form?EQBCT=ad01d0efbb024036a9de68497eae6963>
- For smaller projects (less than 10-20 pots or trays) the space request form must be submitted (2) two weeks prior to the start of the project.
- For larger projects (greater than 10-20 pots or trays) the space request form must be submitted (1) month prior to the start of the project.
- Priority is granted to UNL Faculty and USDA Adjunct Faculty.
- Greenhouse and Growth Chamber space will be assigned only for the specific time period required by the project. Space can be renewed on an annual basis by making a written (email) request to the corresponding Greenhouse Manager. Major revisions to a current space request will require written notice.
- Users must confine their projects to the area specifically assigned to their project.
- Users cannot reassign their unused space to others; all space must be allocated using the process outlined in this policy.
- All attempts will be made to fully utilize greenhouse and growth chamber space.
- Delays in project completion should be discussed as soon as possible with the Greenhouse Manager.
- Billing - Users will be invoiced on a monthly basis for space and services used.
- A copy of this document will be attached to the space request approval email.
- The goal of these policies are to enhance communication between greenhouse users and the greenhouse managers.

Section 2: Requesting Plant Materials for Use by Classes

- Plant materials to be grown for classroom use require adequate lead time. Requests for course materials each semester should be received by the Greenhouse Manager in writing (email) two (2) months prior to the first day of classes.
- Requests for new crops, along with a delivery schedule, should be made far enough in advance to allow for a test crop to be grown.
- Collection Houses (Teaching Greenhouse East (TGE) & Beadle 1C) – if a certain stage of plant is needed at a specific time of year, please submit a request in writing two (2) months in advance.
- Billing - Users will be invoiced on a monthly basis for space and services used.

Section 3: Office Plant Watering Services for UNL Buildings

- UNL personnel can request Office Plant watering services for an hourly rate.

Section 4: Required Training for All Greenhouse Users

- First time greenhouse and growth chamber users are required to schedule an orientation session with the Greenhouse Manager. In addition to introducing the user to the resources available, additional topics to be discussed will include: correct procedures to handle containers, soil mixes, fertilizers, disease and pests control, watering and supplies. A copy of this document will also be provided to the user.
- All greenhouse and growth chamber users are required to complete EPA mandated Worker Protection Standards (WPS) training prior to starting any project in the facilities. This training will be provided by the greenhouse staff throughout the year. Refresher training is required every year.

Section 5: Greenhouse Cleaning Procedures

All Greenhouses will be cleaned, heated, and disinfected on a routine basis and/or as a project ends by the greenhouse staff.

Section 6: Growth Chamber Cleaning Procedures

All Growth Chambers (Walk-In & Reach-In) will be emptied, cleaned, heated, and sterilized at a minimum of once a year by the Greenhouse Staff. Users will be given a two (2) month notice prior to cleaning.

- Cleaning date will be normally conducted the last Friday of the month or as an experiment ends.
- All plants in the space should be harvested or moved to the designated area by the posted cleaning date.
- Chamber will be emptied, cleaned, heated, and sterilized starting that Friday and through the weekend.
- Normal chamber conditions will resume on the following Monday.
- Only new plants/trays will be allowed in the cleaned chamber.

Section 7: Sanitation Procedures

- All new plant materials are to be inspected by a member of the Greenhouse Staff for infestation/contamination before being introduced into the greenhouse. Infected plants will be treated before being placed in the facility or may be denied placement based on current level of infestation.
- Disease and insect problems must be reported immediately to a member of the Greenhouse Staff. Users are not allowed to apply pesticides or control the issue on their own, Greenhouse Staff will handle the situation.
- Media should be kept clean and free of debris. Do not re-use spilled soil or soil that accumulates on the floor. This should be placed in the compost area.
- All hose ends, water breakers, mist nozzles and other attachments should be hung up off the greenhouse floor when not in use. Water should be turned off and the pressure released. Report hose repairs to the Greenhouse Manager.
- Greenhouse benches are to be kept clean. Do not stand or put feet on greenhouse benches. This will help avoid carrying diseases or pests up to crop level.
- Greenhouse carts should be swept and sprayed with disinfectant after use and returned to the proper area. All greenhouse carts are to be returned to the proper area every evening.
- Greenhouse space is to be kept clean and orderly by all users. Consult with the Greenhouse Manager for storage alternatives.
- No materials or equipment may be permanently stored in the headhouse areas. Headhouse areas must be cleaned up immediately after use.
- All dirty flats and pots should be placed in the posted areas. These items will be washed, disinfected, and restocked by the Greenhouse Staff.

Section 8: Plant and Soil Waste Disposal

Please contact the corresponding Greenhouse Manager directly for disposal of large quantities of materials (greater than 10-20 pots or trays).

Plant Material and Soil can be composted unless it is contaminated and/or is recombinant material.

- *Beadle Center Greenhouse*
 - Greenhouse – place pots on floor in front of room.
 - Preparation Room Area – place material in labeled compost bin under the sink.
- *Plant Pathology Greenhouse* – Contact Greenhouse Manager, Donn Ladd
- *Agronomy Horticulture Greenhouses 2, 3, & 4* – Contact Greenhouse Manager, Jeff Witkowski

Contaminated and Recombinant Materials (pathogens not native to Nebraska, research related insects, Genetically Modified Organisms (GMO's), or recombinant plant material, as well as potentially contaminated material such as soil, labels, containers, or plants in same space as recombinant plant material) must be autoclaved. Please place the materials in the designated area and the Greenhouse Staff will ensure it is handled properly. Plastic labels, broken clay pots, paper bags, plastic cell packs, disposable plastic pots can go in the trash. It is the Principal Investigator's (PI's) responsibility to determine what material requires autoclaving. In most cases this is determined by the approved Institutional Biosafety Committee (IBC) Protocol. If in doubt, please contact UNL's Biosafety Officer, Matt Anderson (402-472-9554).

- *Beadle Center Greenhouse*
 - Greenhouse – place pots on floor in front of room.
 - Prep Room Area – Place material in red autoclave bins. Please do not overfill bins. Keep in mind what one person can lift with ease.

Plant Pathology Greenhouse - Place material in metal cans in hallway near autoclave. Please do not over fill cans. Keep in mind what one person can lift with ease.

Agronomy Horticulture Greenhouses 2, 3, & 4 - Metal cans are labeled for material to be autoclaved and will be regularly checked by greenhouse staff and taken to be autoclaved.

Section 9: Greenhouse & Growth Chamber Equipment & Environmental Controls

- Greenhouse Equipment (autoclaves, soil carts, vacuums, etc.) & Environmental control equipment (temperatures, vents, lights, etc.) will be operated by greenhouse staff only. Changes in environmental conditions in individual greenhouse spaces should be requested in writing via email. Greenhouse Equipment is not for personal use.
- Malfunctions in the environmental control systems should be reported to the Greenhouse Manager in writing. In an emergency situation, any Greenhouse Staff member may be contacted. A list of emergency contacts is posted on the bulletin boards by the manager's office.
- Attached fixtures (growth chambers, light bulbs, etc.) purchased by the user and housed in the greenhouse is property of the Greenhouse Service Center.
- Unless an emergency situation is involved, normal after hour/weekend emails will be answered within two (2) business days.

Section 10: Supplies

A stock of standard pots, flats, labels, fertilizer, media and other common use supplies are kept on hand for greenhouse users. These supplies are available for research and teaching projects conducted at the greenhouses at no additional charge. Advance notice of one week is required for large quantity requests (greater than 10-20 pots or trays) or specialty soils, mixes, pots, trays, etc.

- Non-Standard Supplies and Extras - (specialty pots, CO₂ and tanks, special media mixes, different fertilizer, etc.) can be obtained through the Greenhouse Manager and charged to the user project. Discounts and free shipping is available with many vendors.
- The Greenhouse Manager will discuss with the user if a disproportionate use of supplies per square foot of space is planned for and/or used. Extra supplies will be charged to the provided cost center.
- Supplies are not to be used for laboratory work, field work and/or personal use.

Section 11: Greenhouse and Growth Chamber User Responsibilities

- Ensure that your safety training is appropriate and up to date.
- Maintain open lines of communication with the Greenhouse Staff concerning the status of the project(s).
- Plan space and supply needs in advance.
- Consult with the corresponding Greenhouse Manager if there is a requirement for large quantities or unusual types of supplies.
- Clearly label all material including your name, laboratory name, and the date of planting.
- Submit email requests for assistance, change in routine or change in location (i.e. special watering instructions, bench modification, moving plants, etc.)
- Greenhouse users are expected to maintain an active role in the progress of their projects.
- Promptly notify the corresponding Greenhouse Manager of required repairs, replacements needed (lights, broken glass) or any other problems with the growth facility.
- If preparing trays for later use – trays must be planted one (1) week after being prepared.
- Maintain greenhouse space in an orderly manner, paying particular attention to neatness and sanitation.
- Plant materials should be disposed or harvested within 1 week after completion of the project. Allowing materials to become pest infested or overgrown will not be tolerated.
- Notify the Greenhouse Staff promptly when a greenhouse or growth chamber project reaches completion. The billing for the space will continue unless notified otherwise.
- If a user has been in the field, the user cannot enter greenhouse bay(s)/room(s) the same day unless they have showered & changed clothes after leaving the field.

Section 12: Building Security

- Access to the Greenhouses are limited to authorized personnel only. Visitors (including children) must be properly escorted and supervised by a faculty or staff member at all times.
- Greenhouse Staff members are available Monday thru Friday from 8:00 am to 4:30 pm.
- Users requiring after hours/weekend access to the greenhouses should request in writing (email) the corresponding Greenhouse Manager for access. If working after hours/weekends make sure to have proper identification available in the event that it is requested by an UNL Police Officer.
- Do not give door access codes out to anyone, if you have someone who needs access to a building for a project, contact the greenhouse manager first, so they can meet with the individual.
- Bikes, roller blades, skate boards, etc. are not allowed in the headhouses, hallways, or greenhouses. Bike racks are located outside, around the different buildings/greenhouses.

Section 13: Tours

- Please allow 72 hours of notice for tours led by a member of the Greenhouse Staff.
- As a courtesy, please notify Greenhouse Staff as soon as possible (72 hours is recommended) about self-guided tours of the greenhouse areas.

Section 14: Penalties for Non-Compliance

Failure to comply with the procedures and policies above will have the following consequences:

- First offense: Written warning to the user (student, technician, lab personnel, post-doc, etc.) and the Principal Investigator (PI).
- Second offense: Meeting with the user, PI, Greenhouse Manager, and Greenhouse Director to discuss issues and resolutions.
- Third offense: User and PI meet with Greenhouse Committee to discuss issues, resolutions, and penalties.