



Donald Danforth Plant Science Center

Plant Growth Facility

Service Guide

WWW.DANFORTHCENTER.ORG/PLANT-GROWTH

Welcome to the Danforth Center

About the Danforth Center:

The Donald Danforth Plant Science Center is the world's largest nonprofit plant science research institute, located in St. Louis, Missouri. Our mission: Improve the human condition through plant science.

About our Core Facilities:

Our Core Facilities are centers of excellence, housing domain experts and cutting-edge technology. Our teams provide services to internal users, external academic labs, and companies, as well as advances technology and research in the field.



Learn more about the
Core Facilities:

[DANFORTHCENTER.ORG/CORE-FACILITIES](https://danforthcenter.org/core-facilities)

How to use this guide:



- Find the right growth areas and services to fit your needs – self-service equipment and work areas, full-service packages, trainings, and more.
- See an overview of our facilities, included services, and equipment.
- Email us to inquire about availability and get an official quote.

Contact us: PGFManagers@danforthcenter.org

Introducing the Plant Growth Facility

The Donald Danforth Plant Science Center's Plant Growth Facility (PGF) is a state-of-the-art complex designed to provide scientists with best-in-class resources for research, collaboration, and learning.

50 Climate-Controlled Greenhouses

capable of closely replicating the crop's natural growing environment.



Open-Space Potting Rooms

fully stocked with pots, trays, and growth media for setting up custom experiments.



100 Cutting-Edge Growth Chambers

allow the creation of custom light spectra and carbon dioxide addition and scrubbing capabilities.



Dedicated PGF Staff

provide year-round horticultural and operational support to allow clients to focus on advancing the DDPSC's mission.

Services and Supplies

Included with Growth Space Rental

Services

- Programming and monitoring of computer-controlled environments
- Watering 365 days a year
- Maintenance of proper soil fertility levels
- Pest scouting and control measures
- Adjusting and maintaining supplemental lighting and photoperiod control
- Greenhouse maintenance and routine sanitation
- Autoclaving of all plant material
- Setting up automated watering systems where appropriate

Supplies

- Potting mixes
 - Berger 7-35%, Promix BX, Promix FPX
- Supplemental media components
 - Vermiculite, Perlite, Sand, Turface
- A wide variety of pots and containers
- Clear domes
- Rooting hormone
- Transportation carts
- Miscellaneous supplies
 - Stakes, Twist ties, Pruners, and Pot labels

Extended Services

Available at an Additional Cost

Extended services may be offered based on PGF staff time and labor availability. It is the client's responsibility to perform any extended services that are necessary to maintain the utmost quality care for their crop. An additional charge is required for the PGF to perform these services.

- Planting or transplanting
- Tissue Culture transfers to soil
- Propagation, potting of cuttings, stakes, etc
- Crop-specific record keeping and labeling
- Seed harvesting, cleaning, and packaging
- Pollinating and bagging of inflorescences
- Staking and pruning of plants
- Tissue sampling
- Soil-Mixing
- Moving plants to growth areas or between growth areas
- Any other service requiring beyond standard level of care



Contact PGF Director Kevin Reilly for a Quote

kreilly@danforthcenter.org

Staff Labor	• Our expert Technicians are available for additional services and data collection for your unique needs beyond the standard care. <table><tr><td>ACADEMIC</td><td>COMMERCIAL</td><td>STL SMALL BUSINESS</td></tr><tr><td>\$60.50/hour</td><td>\$60.50/hour</td><td>\$60.50/hour</td></tr></table>	ACADEMIC	COMMERCIAL	STL SMALL BUSINESS	\$60.50/hour	\$60.50/hour	\$60.50/hour
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Director Consulting	• Expert advising from the Plant Growth or Additional Core Directors <table><tr><td>ACADEMIC</td><td>COMMERCIAL</td><td>STL SMALL BUSINESS</td></tr><tr><td>\$158/hour</td><td>\$231/hour</td><td>\$196.35/hour</td></tr></table>	ACADEMIC	COMMERCIAL	STL SMALL BUSINESS	\$158/hour	\$231/hour	\$196.35/hour
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STL Small Business Discount



Small businesses in the St. Louis metropolitan area receive a 15% discount on all services and equipment rental. To qualify, the company's billing zip code must be in the St. Louis metropolitan area (list here: [St-Louis-Metro](#)). Employees must operate out of the St. Louis metropolitan area address and be capable of being physically present at the Danforth Center during the time of service, if needed. Companies must meet [small business qualifications](#) as determined by the Small Business Association. To meet these qualifications, companies must provide NAICS code and the number of total employees or millions of dollars. Note: The total number of employees is used in this determination, not the number of employees at the St. Louis metropolitan location. If the "company" is a site of a larger parent organization, the entire organization is considered for small business qualification. Companies that are outside of the St. Louis metropolitan area that do not qualify as a small business, are also welcome to use the Core Facility services, but do not receive a discount.

Additional Work Areas



Potting Rooms

AVAILABLE TO ALL USERS FOR NO EXTRA FEE



Active Drying Chambers

AVAILABLE TO ALL USERS FOR NO EXTRA FEE



Dry Down Room

PASSIVE DRYING - AVG \$ PER SQ FT PER MONTH

ACADEMIC	COMMERCIAL	SM BUSINESS
\$1.06	\$4.02	\$3.42



Seed Storage Coolers

AVG \$ PER SQ FT PER MONTH

ACADEMIC	COMMERCIAL	SM BUSINESS
\$0.58	\$4.26	\$3.62

Onsite Equipment

PGF Staff Training and Supervision Required



Soil-Mixer



Thresher

Greenhouses

3 Ranges. 50 Compartments. 94,401 Total Square Feet.



All Greenhouses Include:

- ✓ Environmental control systems for temperature, light, and humidity
- ✓ Automated Irrigation and Nutrient Delivery Capabilities
- ✓ High-intensity, Energy Efficient LED Lighting
- ✓ Piped in Reverse Osmosis and Fertilizer Water
- ✓ Modular Bench/Table Design

8

Air-Conditioned Greenhouses

2

Black Out Greenhouses

4

In-Floor Heating Greenhouses

2

Propagation Greenhouses

Fixed and Height-Adjustable Light Canopies

10-20 Foot Tall Eaves

Growth Chambers

2 Facilities. 100 Growth Chambers. 5,800 Total Square Feet.

The Kit Bond and Bellwether Foundation Plant Growth Facilities house the 100 total reach-in and walk-in growth chambers and rooms at the Danforth Center.

What is included in a standard growth chamber?

- $\pm 0.5^{\circ}\text{C}$ Temperature and Humidity Controls
- LED Lighting
- Custom Day/Night Cycles

Specialty Features

- High light intensity (up to $1000 \mu\text{mol}/\text{m}^2/\text{s}$)
- Low and High Temperature control (-10°C - 50°C)
- Carbon dioxide addition and scrubbing (100 - 3000 ppm)
- Light spectrum control (Heliospectra LEDs)



Chamber Models

All growth chambers are capable of all standard climate settings, but some are equipped with the specialty features. Billing is based on the specialty features of the individual chamber, not necessarily the model capabilities.



= Reach-In Chamber



= Walk-In Chamber

Model	Type	Air Flow	Standard	High Light	Low Temp	Ultra-Low Temp	High Temp	CO2	Far Red	Low RH
PDW										
MTR										
PGR										
BDW										
MTPS										
GEN1000										
PGC										



Multi-User Areas

No Experiment is Too Small



The Plant Growth Facility offers multi-user greenhouses and growth chambers to allow users to perform their smaller experiments without needing to reserve an entire unit. Multi-user growth spaces are set to match crop standards to accommodate the most popular species' requirements.

Custom Experiments

Flexible Growth Areas for Unique Setups

Need a setup that is outside of the standard layout? The PGF allows users to design and create custom containers and setups that best suit their needs. All custom projects go through a screening from the PGF, safety, and engineering departments to ensure that all equipment is safe, stable, and secure. Unsure what you need? [Consulting](#) is available to help ensure you're building the best system for your project.



Irrigation & Fertigation Services

Focus on the Research—We'll Handle the Rest

Our expert horticulturists manage all irrigation and fertilization needs, using methods tailored to your crop's requirements for optimal growth.

💧 Irrigation Methods

- **Automated Systems:** Ebb-and-flow & drip irrigation
- **Manual Care:** Precise hand-watering when needed
- **Customized Set-up:** Based on crop type and project goals

🌿 Fertilization Options

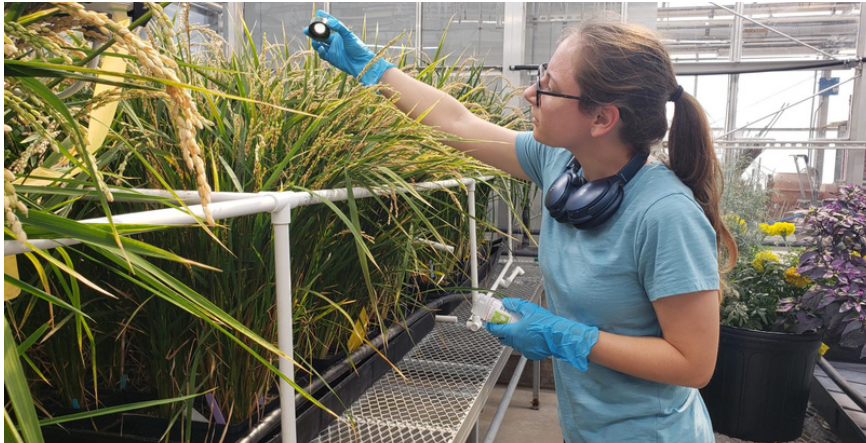
- **Standard Mixes:** Two main blends piped directly into every greenhouse
- **Custom Solutions:** Portable injectors available for personalized nutrient mixes

🔍 Quality Assurance

- Routine water quality checks ensure consistent, healthy growing conditions



Integrated Pest Management



The PGF harnesses the predatory and parasitic powers of beneficial insects to target hard-to-reach pests with biweekly releases. Our soil-breeding program also enables rapid, on-demand deployment to protect new plantings no matter when they arrive.

Biological Controls: Releases & Rearing

Utilizing softer and safer chemicals compatible with the beneficial insects, PGF staff perform weekly pesticide applications to knock down persistent pest populations. Yearly WPS training ensures user safety when working within the greenhouses and growth chambers.



Pesticides: Sprays & Drenches



At the end of each growth cycle, greenhouses undergo a high-heat treatment to eliminate any lingering pests or pathogens. All surfaces are thoroughly cleaned and sanitized, ensuring a fresh, healthy start for the next project.

Sanitation: Cleaning & Baking

Confident Crop Containment



Approved USDA Supercontainment Facility

- Regulatory Expertise to Accommodate Permitted Work & Stewardship Agreements
- BL2-P Ready Facilities
- Securable, Sole-Occupancy Spaces Available
- Devitalization and Removal of Plant Material included in Space Rental

Need Guidance?

Expert Biosafety Team Available for Consultation.

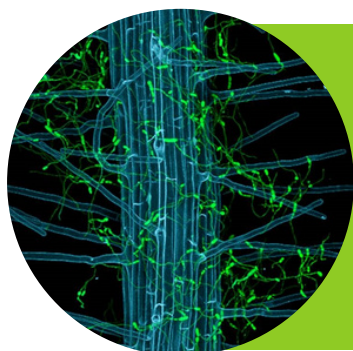


Core Facilities

Learn more about what the Core Facilities at Danforth have to offer.



PLANT
GROWTH
FACILITY



ADVANCED
BIOIMAGING
LABORATORY



FIELD
RESEARCH
SITE



PHENOTYPING



PLANT
TRANSFORMATION



DATA
SCIENCE



BIOANALYTICAL
CHEMISTRY

DANFORTHCENTER.ORG/CORE-FACILITIES



Ready to Start?

If you are interested in learning more or utilizing the plant growth facility, send us an email to get started!

CONTACT PGF DIRECTOR
KEVIN REILLY

KREILLY@DANFORTHCENTER.ORG

WWW.DANFORTHCENTER.ORG/PLANT-GROWTH

