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Topics

PGC Website: ag.montana.edu/pgc

The starting point to request space, find specifications for manuscripts and learn facility policies.

Greenhouse Environment

Setpoint Temperature

Functional Range: Day 60°F – 80°F (16°C – 27°C). Night 50°F - 75°F (10°C – 24°C). With a 15°F difference between day and night setpoints.

The PGC control system has a poor datalogging feature. If monitoring of temperature is important, you will need to provide a datalogger. Check out <https://www.onsetcomp.com/> for reasonably priced equipment. Solar radiation shields are required for deployment in greenhouse.

Supplemental Lighting

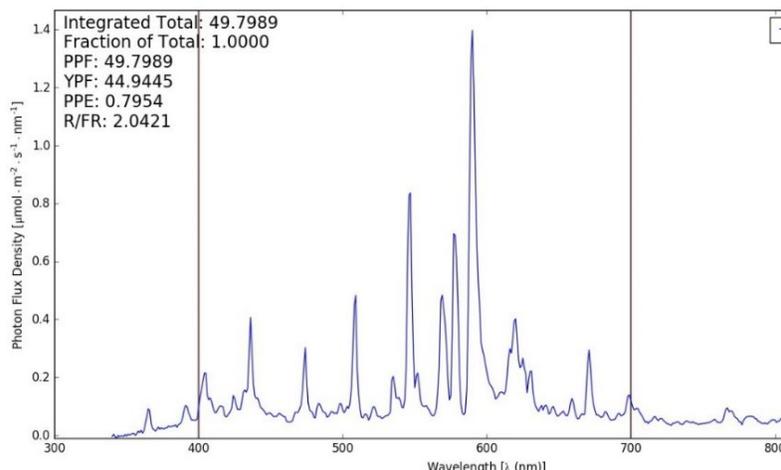
The use supplemental light to provide a 16 hour photoperiod is common in the PGC. A typical lighting program would look like this:

- May 15 – September 15 - No supplemental lighting
- September 15 – November 15 – Split days with lights on from 5 am-9am and 5 pm-9pm
- November 15- March 15 – Full days with lights on 5 am-9pm
- March 15 – May 15 – Split days with lights on from 5am-9am and 5pm- 9pm

Winter PAR level on January 10th at 10:30 am under clear sky conditions:

- Outside: 547 $\mu\text{mol m}^{-2} \text{s}^{-1}$
- Greenhouse 179K w/ lights on: 327 $\mu\text{mol m}^{-2} \text{s}^{-1}$
- Greenhouse 179K w/o lights: 268 $\mu\text{mol m}^{-2} \text{s}^{-1}$

The PGC has a handheld PAR meter and spectroradiometer available for loan. The spectroradiometer requires a laptop and software installation.



Spectrum from Metal Halide Greenhouse Lamp

Irrigation Water Quality

Water quality, especially the alkalinity level, has a profound effect on growing media pH. PGC irrigation water has a moderate level of alkalinity (~100 ppm CaCO₃) which will cause growing media pH to increase over time.

The PGC office has pH/EC pens and alkalinity test kits available for loan.

Growing Media

There are three standard growing media available at the PGC. All mix ratios are by volume:

Sunshine Mix #1 – Commercially prepared media comprising of three parts peat moss to one part perlite. Contains a starter fertilizer charge, wetting agent, and dolomitic limestone.

MSU Mix – Inhouse prepared mix comprising of one part topsoil, one part peat moss and one part sand. Includes a wetting agent. Steam pasteurized at 65°C - 70°C for an hour.

50/50 Mix – A blend of MSU Mix and Sunshine Mix

Growing media chemical analyses are available in the specification section of the PGC website.

Premoisten potting mix before filling pots.

Fertilizers and Fertilizer Injectors

See attached copies of fertilizer labels.

Pour-Through Test demonstration

Insect, Mite and Disease Issues

Aphids, spider mites, thrips, fungus gnats and shore flies are the major PGC arthropod pests. Powdery mildew is the predominate pathogen in the greenhouse.

Pest management is always easier with the infestation is at a low level. **Pesticide application times are Monday and Thursday afternoons.** Please have your requests in before noon on application days and make sure the entire lab crew is aware of the application and REI.

Insecticide Categories

<u>Conventional</u>	<u>Botanical/Microbial</u>	<u>Soaps/Oils</u>
Pyrethroids	Botanigard	M-PED
Imidacloprid	Azadirachtin	JMS Stylet Oil

Contact, systemic and translaminar flow

A good source of biocontrol agents is ARBIOCO: <https://www.arbico-organics.com/>