

## **Crop and Soil Science Description of Departmental Facilities**

### **Greenhouse Research Facilities - Athens Campus**

Research Facilities were first established at this location in the late 1960's (1969 first structures). Through the years up to the present time, the facilities have expanded to help meet and support the research and teaching needs of the CSS faculty, students, and other researchers (private and academic) associated with the department. The mission of the CSS facilities was to provide a location close and convenient to campus suitable to do research, demonstration, and teaching laboratories related to crop and soil science.

Currently, there are approximately 80 people that have research and teaching related activities at the facilities. There twelve different CSS programs led by CSS faculty members using the facilities. Each program contains technical staff and graduate students conducting research and teaching projects.

The facilities consist of 3 greenhouses, 1 head-house, 1 soil media storage building, and 1 cold storage room.

- Greenhouses – each greenhouse measures 40 feet (width) X 100 feet (length). The total space is divided into 3 equal sections. Each section contains 5 growing benches (3ft (width) x 33 ft length). All sections have exhaust fan ventilation and heating. The greenhouses have fiberglass walls and glass roofs.
- Head-house – the head-house is a rectangular structure measuring 33 ft (width) X 100ft (length). The head-house is a multi-purpose building with offices, a laboratory area, and 5 environmental chambers. The head-house is a metal building.
- Soil Media Storage Building – This square-shaped building is 30 ft (width) X 40 feet (length). The main functions of this building are soil storage, soil preparation, and greenhouse supply storage. The Soil building is a metal building.
- Cold Storage Room – This a square-shaped refrigeration unit measuring 16 ft (width) X 20 ft (length). The main function of this room is mainly to store seed and other related germ plasmas.

The greenhouse personnel consist of 1 Research Professional position, 1 part-time student worker position, and 1 weekend watering position. As the facilities continue to expand according to research needs, other personnel positions may be created and added to the current staff.

- Research professional position – This position manages the greenhouse facilities. The responsibilities include the daily operations such as irrigation, pest management, supervising part-time laborers, sanitation, and soil preparation. Other responsibilities include handling repairs and preventative maintenance to the facilities, coordinating and assisting in greenhouse-related activities upon requests from faculty and other greenhouse users, and managing an operating budget.
- Part-time student position – This position is to mainly assist in the daily operations listed above. This position is granted 15 -20 hours per week.
- Weekend Watering position - This position is also a part-time (hourly). The main responsibility of this position is to water the plants at the facilities 2 times per day on Saturday and Sunday. This position also helps with watering needs on holidays.

The greenhouse committee consists of 4 faculty members and the greenhouse manager. One of the faculty members is the chairman. The main duties of the committee is to govern and allocate space, create and implement policy related to greenhouse use and operation, consider special requests or needs presented by greenhouse users, and make recommendations for capital improvements and additions to the facilities.

The committee members are: Dr. Nick Hill - chairman, Dr. Roger Boerma, Dr. Katrien Devos, Dr. William Miller, and Kurk Lance

**Greenhouse Space Request Form for “Flexible” (unassigned) Greenhouse Space  
Crop and Soil Sciences**

1. Project No. \_\_\_\_\_

2. Short Title \_\_\_\_\_

3. Project Leader \_\_\_\_\_

4. Cooperating Personnel \_\_\_\_\_

5. Specific Experiments –

A. Bench space needed \_\_\_\_\_ No. of weeks \_\_\_\_\_

B. Detailed Treatment Plan with Specific Instructions (provide to greenhouse manager no later than two weeks prior to initiation of experiment)

C. Responsibilities (check comment where applicable or use extra space)

<u>Comment</u>	<u>Greenhouse Manager</u> _____	<u>Project Leader(s)</u> _____
1. Soil Preparation	_____	_____
2. Fertilization	_____	_____
3. Fungicides	_____	_____
4. Insecticides	_____	_____
5. Daily Watering	_____	_____
6. Weekend Watering	_____	_____
7. Shade (summer)	_____	_____

Other: (specify)

Note: All personnel entering the greenhouse after normal operating hours or on weekends will trip the security system at the greenhouse complex unless disarmed prior to their entrance. Project leaders must make sure all personnel who work in the greenhouse have adequate training for the security system at the greenhouse complex.

D. The Greenhouse Manager and his staff agree to perform duties to the best abilities as personnel and facilities permit. Project leaders should notify the Greenhouse Manager about concerns.

- C. The Project Leader(s) has read and agreed to follow attached policies concerning pesticides, introduced biological agents, biologically modified microorganisms, and space utilization.

THE UNDERSIGNED HAVE READ THIS ENTIRE DOCUMENT APPROVED THIS AGREEMENT:

Project Leader: \_\_\_\_\_ Date: \_\_\_\_\_

Greenhouse Manager: \_\_\_\_\_ Date: \_\_\_\_\_

Department Head: \_\_\_\_\_ Date: \_\_\_\_\_

### **Greenhouse Policy and Procedures**

Policy on Space Utilization - Limitations of the number of “flexible” greenhouse benches and the expected demand for use make it imperative to establish use protocols for which all Project Leaders will abide.

1. Space will be assigned on a first-come, first-serve basis. Each experiment will be considered an independent request and a running list of requests will be maintained by the Greenhouse Manager and your request will be addressed as your request reaches the top of the list. The Greenhouse Manager will contact you when your request reaches the No. 2 position on the list to provide you with advanced notification as to when you can expect to begin your experiment. It is the Project Leader’s responsibility to have their experiment ready to set up on that expected date.
2. No project leader will be permitted to run sequential studies unless they receive written approval from all Project Leaders who have signed up for flexible space use.
3. Project Leaders will be responsible for removing all experimental materials from the flexible bench space within two days following completion of the experiment. Failure to clean up following the experiment will result in forfeiting subsequent requests for flexible space.
4. The Greenhouse manager will surface-sterilize the experimental area and prepare it for the next experiment on the list. Project leaders will have 5 working days install to get their experiment. Failure to establish their experiment within the allotted time will result in forfeiture of the opportunity to utilize the space.
5. A current flexible space request list will be maintained on the Departmental web page. Project leaders may negotiate with one another to swap positions on the request list. A written request to swap positions must be signed by both Project Leaders and submitted to the Greenhouse Manager who will then make adjustments to the request list.

#### Policy Statement for Use of Pesticides:

1. Pesticides which have not yet received EPA registration for a particular crop or plant species must be cleared for use by the Greenhouse Manager. A record of these applications will be

maintained by the Greenhouse Manager. Plants and plant products which receive applications of non-registered pesticides must be destroyed. It is the responsibility of the researcher to destroy these plant products.

2. Pesticides which do not have EPA registration for greenhouse use will not be applied by the Greenhouse Manager. The Greenhouse Manager will post appropriate pesticide warning signs with re-entry information (as outlined by product label information) whenever pesticides have been used.
3. Project Leaders will be responsible for posting pesticide warning signs with re-entry information from the product label whenever personnel (other than the Greenhouse Manager) apply pesticides. Only individuals having a current commercial or private pesticide applicator's license, or individuals supervised by a UGA Crop and Soil Sciences employee with a current commercial or private pesticide applicator's license will be permitted to apply pesticides in the greenhouse.

Policy Statement on Introduction of Foreign or Genetically Altered Pest or Microorganism Species.

1. The introduction of foreign or genetically altered pests or microorganism species must be approved by the Head of the Department of Crop and Soil Sciences and the Crop and Soil Sciences Greenhouse Committee before any such research can be initiated. The individual researcher will be held responsible for containment of the organism and for handling of the infested areas at the conclusion of the research. The researcher's procedure for containment of the organism and handling of the infested area must be clearly outlined in the initial written request. The researcher will bear responsibility for all costs associated with clean up of infested areas.
4. No project leader will be permitted to run sequential studies unless they receive written approval from all Project Leaders who have signed up for flexible space use.
5. Project Leaders will be responsible for removing all experimental materials from the flexible bench space within two days following completion of the experiment. Failure to clean up following the experiment will result in forfeiting subsequent requests for flexible space.
6. The Greenhouse manager will surface-sterilize the experimental area and prepare it for the next experiment on the list. Project leaders will have 5 working days install to get their experiment. Failure to establish their experiment within the allotted time will result in forfeiture of the opportunity to utilize the space.
7. A current flexible space request list will be maintained on the Departmental web page. Project leaders may negotiate with one another to swap positions on the request list. A written request to swap positions must be signed by both Project Leaders and submitted to the Greenhouse Manager who will then make adjustments to the request list.

## **Plant Science Farm - Athens Campus**

The Plant Science Farm was established on approximately 525 acres of newly acquired property in Oconee County in 1970. The purpose was to provide an area for field-based research, demonstration, and teaching space convenient to the Athens area with emphasis being placed on agronomic crops. CRSS was designated as home department for the farm however, faculty from other departments and colleges utilize the facility. Management of the farm is provided by onsite staff and the Plant Sciences Farm Committee which meets as needed. The Committee takes an active part in setting guidelines and policies as well as making recommendations with regard to farm operations. This committee consists of faculty and staff members from Crop and Soil Sciences, Entomology, and Plant Pathology.

The Plant Science Farm is divided up into 6 sections which are further divided up into a total of 261 plot areas. These plot areas range in size from a few hundred square feet to nearly 5 acres. There are five diesel pumping units that supply water to the different sections of the farm. Ground water is supplied by a system of ponds that also serve to contain run-off from the field areas. An extensive underground system of pipe and riser outlets combined with movable aluminum pipe and irrigation guns is used to provide water to plot areas.

There are many different buildings that were part of the assets that were acquired when this farm was established as a University of Georgia farm. These buildings are being used for a wide variety of purposes including office space, break areas, shop areas, storage areas, and crop processing areas. There is also an on-site residence that is provided for the manager of the farm.

The resources necessary for conducting field operations are supplied by a wide variety of equipment that is operated and maintained by the farm staff. In addition many of the people conducting work at the farm have their own equipment that they maintain and operate.

# COOPERATIVE AGREEMENT

*Between*

Plant Science Farm (PSF) and Project Leader(s) (PL)

Project No. \_\_\_\_\_

Short Experiment Title: \_\_\_\_\_

Project Leader(s): \_\_\_\_\_

Cooperating Personnel: \_\_\_\_\_

Specific experiment(s) or demonstration(s):

- A. Land area needed \_\_\_\_\_ No. of years \_\_\_\_\_
- B. Provide to Farm Manager detailed treatment plan with specific instructions (please submit ASAP, but no later than 2 weeks prior to application of treatments)
- C. Responsibilities (indicate who is responsible for each item, Provide comments as needed)

	<b>PSF</b>	<b>PL</b>	<b>Comment</b>
1. Land preparation	_____	_____	_____
2. Fertilizers	_____	_____	_____
3. Herbicides (preplant)	_____	_____	_____
4. Herbicides (surface)	_____	_____	_____
5. Nematicide	_____	_____	_____
6. Fungicides	_____	_____	_____
7. Insecticides	_____	_____	_____
8. Planting	_____	_____	_____
9. Cultivation	_____	_____	_____
10. Irrigation (if available)	_____	_____	_____
11. Cut alleys, thin to desired population	_____	_____	_____
12. Maintain plots	_____	_____	_____
13. Sign & treatment identification	_____	_____	_____
14. Notes and sample collection	_____	_____	_____
15. Weather data	_____	_____	_____
16. Harvesting, drying, weighing etc.	_____	_____	_____
17. Sales or disposition of products	_____	_____	_____
18. Data analysis	_____	_____	_____
19. Post harvest treatments	_____	_____	_____
Other:	_____	_____	_____

*Note: Project leaders are responsible for providing supplies and equipment not normally available at the PSF, and for paying any fees associated with special laboratory analysis of research samples.*

Farm Manager agrees to provide the requested support in an as effective manner as personnel and facilities allow.

Project Leaders should notify Farm Manager of impending visits.

Project Leader has read and agrees to follow the attached policies concerning pesticides and introduced biological agents.

The undersigned hereby approve the above agreement

Project Leader: \_\_\_\_\_ Date: \_\_\_\_\_

Farm Manager: \_\_\_\_\_ Date: \_\_\_\_\_

### **Rhizotron - Athens Campus**

Very little is known about the typical seasonal root behavior of most turfgrass species under various environmental and cultural conditions. One method in which this can be accomplished “non-destructively” is through the use of a rhizotron. A rhizotron is an underground root observation laboratory in which root observations are made along the face of glass observation window (see drawing). Such a facility was constructed on the UGA Athens campus in 1985. The project leader during the design, construction and subsequent use is Dr. Keith Karnok, Professor in the Department of Crop and Soil Sciences. The UGA Rhizotron consists of 24 root observation chambers. Each chamber is 2 meters deep and 1 meter square. There are two underground laboratories that adjoin the rhizotron. The rhizotron has also been used to investigate soybean and peanut root behavior.

In addition to departmental facilities, CRSS is associated with the Center for Applied Genetic Technology, Center for Soybean Improvement, NESPAL, and Micro Gin. A detailed description of these can be found in Appendix K.