

A Research Internship at Longwood Gardens in Kennett Square, Pennsylvania

By Erin Regan UW-RF Adviser- Dr. Terry Ferriss On Site Advisers- Alan Petravich & Dr. James Harbage

Cannas

*Problem

-Many cannas around the country, including some rare selections made by Longwood Gardens are infected with a virus.

*Solution

-Rid cannas of virus by means of meristematic isolation.

*My involvement

- Isolate the meristems
- Transfer explants to fresh tubes
- Spread out the population of Longwood cultivars, thereby increasing the chance of healthy plants, by sending plants to other gardens around the country and world.
- Wash roots of all soil matter
- Have plant material inspected for shipping
- Properly pack and ship plants
- Inspect canna plants onsite for the virus



Chrysanthemums

*Problem

-Many chrysanthemums, a very important crop at Longwood, were infected with Chrysanthemum Virus B (CVB).

*Solution

-Rid chrysanthemums of CVB by means of meristematic isolation.

*My involvement

- Take inventory of all chrysanthemums
- Maintain healthy plants of each cultivar in tissue culture
- Test grown chrysanthemums for CVB

*Result

-We found that a number of the cultivars were successfully cleansed of the virus through meristematic isolation.



Tissue Culture

Through my work with the cannas and chrysanthemums, I was able to gain experience in all aspects of tissue culture. I made specialized media, ran the autoclave, transferred plant material, inspected and cleaned out contaminated cultures, performed meristematic isolations, and weaned plants from a tissue culture environment to a greenhouse environment.

Graduate School Program

The graduate school program at Longwood Gardens is taken in cooperation with the University of Delaware. During my internship at Longwood, I joined the Fellows on their Friday field trips in order to gain a better understanding of public garden management and the graduate school program. We visited the Morris Arboretum at the University of Pennsylvania, the Scott Arboretum of Swarthmore College, and Chanticleer Gardens in Wayne, Pennsylvania.

Morris Arboretum



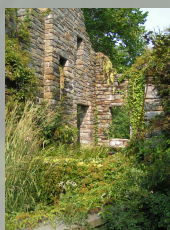
- Private Garden since 1887
- Made public in 1932
- Boasts a wonderful woody collection, Garden Railway, camera obscura, and more
- Most of funding is earned
- 16% University support
- 218% increase in endowment since 1993

The Scott Arboretum

- Allows Swarthmore College to be "The Most Beautiful Campus in America"
- Heavily based on Quaker traditions
- Mission to educate is beautifully executed
- Host of well-known Perennial and Woody Plant Conferences
- 73% of funding from endowment



Chanticleer



- A pleasure garden
- Has been providing floral display only since the early 1990's
- All bridges, iron works, furniture, and murals are made by the horticultural staff
- Rebuilt ruins add wonder to the beauty
- 100% supported by endowment
- One of the "10 Gardens That Inspire Us" by *Horticulture* Magazine.

Cedrus Germination

I worked on finding the most efficient means of germinating *Cedrus* seeds. Due to the length of the experiment and the brevity of my internship, it was necessary to pass along the latter portion of the experiment to a fellow intern. From what I worked on, it was found that in order to open a *Cedrus* cone, it must be soaked in warm water. If a cone is heated in the oven, as some propagation books instruct, the cone simply will not open.

Propagation of Plant Material from Expeditions



- Longwood Gardens' curator travels the world in search of new and unusual plant material.
- When the plants finally arrive back at the gardens, they are sent to the Research Department. The researchers find ways to successfully propagate and grow the new material.
- I had the opportunity to propagate hundreds of exciting new plants from China, Australia, and Greece.

Plant Evaluations

Before a plant can be incorporated into the gardens, it must undergo evaluation by a committee. The committee consists of directors, gardeners, designers, and researchers. If the plant is liked, or even considered, more discussion is involved. If the plant is not liked, it is discarded. I was able to be a contributing member of many of these evaluations.



Guinea Hens

Guinea hens are kept as a part of the Integrated Pest



Management. They are kept in the nursery area to help control ticks and other small insects. I was responsible for getting the new chicks settled in at the beginning of the summer, making sure they were fed, and rounded up in the evening.