



## Floriculture Breeding and New Crop Development

### **Program Leader:**

Dr. Mark Bridgen, Professor and Director  
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### **Research Objectives:**

To breed, to select, and to trial novel floricultural plants that have potential for the American market. Traditional and state-of-the-art breeding techniques are being used to hybridize different plant species such as *Rhodophiala*, *Alstroemeria*, *Achimenes*, *Conanthera*, *Leucocoryne* and others. Protocols for the growth and production of these novel South American geophytic species, as well as other herbaceous plants, are being developed. Biotechnological techniques such as embryo culture, meristem culture, somaclonal variation, *in vitro* mutation techniques, and micropropagation have been incorporated into the breeding program to produce novel and disease-free cultivars. The research is also developing propagation and production protocols for the varieties to be used as potted plants, cut flower crops, or herbaceous garden varieties. New cultivars are being released to the American market.



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### **Project Summary:**

#### **Part I – Plant Breeding:**

A breeding plan has been developed to make interspecific, intraspecific, and intergeneric hybrids of several new bulb, corm, rhizome, and tuberous root species from Chile and other South American countries. The plants are being grown under controlled environments and are being hybridized as they flower. Biotechnological techniques such as embryo culture, somaclonal variation, *in vitro* mutation techniques, and micropropagation are incorporated into the breeding program to circumvent incompatibilities and to elicit novel changes. As hybrids and new cultivars are developed, research will be completed to develop greenhouse production protocols for them.

#### **Part II – Plant Evaluation:**

In addition to the new hybrids that are being developed at Cornell University, we are working with companies such as Yoder Brothers Inc., Oglevee Ltd., Fred C. Gloeckner and Co., Benary Seed, Pan American Seed, Ball Seed, Ecke Ranch, Dummen USA, Goldsmith Seeds, Sakata Seed, American Takii, and several others to trial their new plants. Both greenhouse and field trials have been established in a uniform fashion to allow unbiased evaluation of the different products. Growth of the plants, time to flowering, disease resistance, insect susceptibility and other characteristics are measured. Specific studies on the effect of Florel on poinsettias and chrysanthemums have been completed. Field grown cut flowers and season extension with high tunnels are specific research programs that are related to this research. Formal “Plant Science Days” are scheduled for growers and industry representatives to view and evaluate the plants.

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### **Project Justification:**

The floral market in the United States is receptive to new flowering ornamental species. However, there is little research on the many native Chilean and other South American species that have potential as commercial and ornamental plants. Floriculture production worldwide is controlled by developed nations with the United States being a leader. Total floriculture production value and area in the U.S. has risen. However, to assure lasting U.S. leadership, continued development and dynamic expansion of the horticultural system are necessary. The floriculture industry is an important, expanding, and visible segment of agriculture.



Margaret 'Maggie' Saska  
Research Support Specialist  
Floriculture & Plant Tissue Culture

### **Other Floriculture Team Members: 2004**

Lynn Hyatt  
David Suydam - Suffolk Community College  
Kate Pearson  
Lesley Conroy



Andrea Wood –  
Laboratory Technician



Betsy Kollman –  
M.S. Graduate Student



Chad Miller –  
M.S./Ph.D.  
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