

WHAT'S HAPPENING IN RESEARCH AT COLORADO STATE UNIVERSITY?

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Colorado flower growers usually get a glimpse at various floriculture research activities at the University during our annual Flower Crop Expo in February. This year this event is cancelled. This decision was necessary mainly because of lack of man power. The greenhouse foreman's position has been vacated since Charlie Christensen left on July 1 last year. **Chris Reynolds**, from the University of Arizona, joined us in January as a new manager and we anticipate to resume our routine activities at W. D. Holley Plant Environment Research Center (PERC) including the annual Expo next year.

For those who will miss reviewing the floriculture research projects this year, I present a brief outline of major research projects currently in progress at PERC.

Roses

Research being conducted by **Dr. Hanan** and his graduate student **Richard Harkess** involves determining how the two different rose varieties (Royalty, Red Success) respond to different types of heating systems (fan-jet hot air vs. hot water circulation) at two different levels (approximately 90% RH and 60% RH measured at 72°F) of humidity. Roses have been grown in rockwool and soil media in four fiberglass houses (Heat Houses) installed with hot-water or fan-jet. Watering and misting are controlled by computer according to the total accumulation of light and temperature changes. Plant growth, flower yield and stem lengths are measured. Findings of this research will tell how roses respond to air velocity and humidity stress with an eventual goal of optimizing the crop production. An innovative approach in this research is the use of an acoustic emission device that can detect the sound generated by the breaking of water columns in the stem when subjected to water stress. Funding sources: American Floral Endowment and CGGA.

Carnations

The effects of planting date (June, July) and treatments with Banrot, Banrot plus Trichoderma, and Trichoderma on the performance of two standard carnation cultivars (Im-

proved White and Tanga) are being tested (**Lee** in charge). Banrot is a broad-spectrum fungicide effective on the control of many soil-borne pathogens such as Rhizoctonia and Pythium. The strain of Trichoderma used in this experiment is a mutant line that has been developed by **Dr. Baker** as an effective biological control agent for Pythium. So far the yields of cut flowers were similar among the treatments; however, differences are expected to surface as the Pythium level in the steam sterilized media increases over time. The CGGA Research Committee carefully designed the experiments and we anticipate benefits of test results to carnation growers. Funding source: CGGA.

Development of pot carnation varieties by **Dr. Goldsberry** continues. The Colorado Majestic Mountain Carnation (CMMC) varieties which have been released earlier are well-received by growers in this country and other parts of the world. The new introductions will eventually add more color, new forms and other desirable traits to the CMMC series. The Bay Farm Shoot-Tip Facility has been remodeled with a new name, **Floragenetics Lab**, and this facility will be used for the stock plant program for CMMC and other carnation cultivars. Research assistant **Anna Pobudkiewicz** (from Poland) will be in charge of running the stock plant program under the direction of Dr. Goldsberry.

Bedding and Pot Plants

Effects of the ammonium and nitrate forms of nitrogen on the growth of 11 bedding plants (petunia, marigold, zinnia, salvia, ageratum, coleus, celosia, lobelia, begonia, snapdragon, impatiens) are being studied by **Byoung-Ryong Jeong**, Ph.D. graduate student working with Lee. Jeong has grown these plants in 3 different media (soil, peat-lite, rockwool) at 3 different pH levels with various combinations of ammonium and nitrate nitrogen in the fertilizer (100:0, 75:25, 50:50, 25:75, 0:100 ratios of $\text{NO}_3^-:\text{NH}_4^+$ in percentage). Jeong reports that best plant growth was obtained with a 50:50 combination in most plants. While most plants showed a reduced growth at 100% NH_4^+ , ageratum was extremely sensitive to NO_3^- . More detailed findings will be reported in CGGA Bulletin.

Studies on the micronutrient requirements of bedding plants have just begun (**Lee** in charge). In this experiment both deficiency and toxicity symptoms of 10 bedding plants will be induced and characterized. Funding source: Bedding Plants Foundation.

Growth regulator studies on pot carnations, poinsettia, potted roses and Easter lily are continuing. **Anna Pobudkiewicz** reports that one application of either Sumagic (15 ppm a.i.) or Bonsai (10-15 ppm a.i.) and two applications Cycocel (3500 ppm) in pot carnations greatly improved the quality of flowering plants during the winter months. Working with poinsettia, Anna also tells that dwarfed plants resulting from Bonsai or Sumagic over-doses can quickly be corrected with one application of Pro-Gibb (30-50 ppm a.i.). Studies on Easter lily height control by Sumagic continues for the second year (support from Chevron).

Evaluation of foliage plant production in rockwool-peat mixtures (Peatwool) has just begun (support from Partek North America). Studies of the control of algae and pythium by Agribrom involves pot carnations, bedding plants and Easter lily (support from Great Lakes Chemical Co.).

Miscellaneous Cut Flowers

The influence of ammonium and nitrate forms of nitrogen is also tested on cut gerbera grown bottom-heated benches containing gravel and soil mix (**Dr. Goldsberry** in charge). Dr. Goldsberry also continues his cut flower production and yield study on Japanese daisies which have excellent potential in Colorado. Potentials for growing sweet peas and pansies as cut flowers are investigated by **Anna**. Using Pro-Gibb (50 ppm a.i.), she was able to produce 10" and 20" long peduncles (flower stems) in pansies and sweet peas, respectively. The GA-induced flower peduncles were strong and stored well. Anna is enthusiastic about her findings, indicating that these cut flowers are extensively used for making bouquets in Poland.

Your Suggestions Are Welcome

If you have any questions on our on-going research at PERC, please feel free to contact me at 491-7119. Your suggestions and recommendations for future research are welcome and these can be made through me or R. J. Swartz, Chairman of CGGA Research Committee (659-1260).



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