

P.P.G.A. National Conference:

Date: September 30-
October 4
Location: Currigan Exhibition
Hall
Denver, Colorado
Contact: Kathy Kochendorfer
(517)-694-7700

Ohio Florists Association Zonal Geranium
Short Course:

Date: October 1-3, 1990
Location: Cleveland Hyatt,
Cleveland, Ohio.
Contact: Mark List (OFA)
(614)-267-1117

Minnesota Flower Growers Short Course:

Date: November 6-8
Location: Rolling Green
Country Club
Plymouth, Minnesota
Contact: John Erwin
(612)-624-9703

Research Update

by
John Erwin

Blue Roses . . . Why not?

Calgene Pacific, a California biotech company, is currently working on inserting the 'blueness' gene from petunias into a red rose! Apparently cut flowers with unusual colors are very successful in Japan. A Japanese food

and beverage company, Suntory Ltd., is funding the project to make the insertion of a variety of genes routine.

Palca, J. 1989. Blue genes for roses?, Science, 248:1074-1075.

HPS Increases Alstromeria Yield

Researchers at the research station in Kentville, Nova Scotia experimented with the effects of HPS lighting on the yield from 1 year old alstromeria plants. Lamps maintained a minimum light intensity of 150 footcandles per square meter at canopy level for 16 hours per day. Plants were lighted from December 1 to April 1 and then again from October 1 to April 1 of the following year. Yield increased on almost all cultivars.

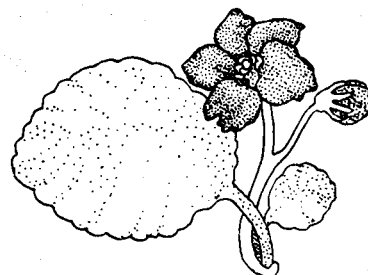
Jacqueline and Ohio (butterfly types) yield increased 42 and 45%, respectively.

Red Sunset and Vanitas (carmen types) yield increased 60 and 35%, respectively.

Mona Lisa and King Kardinal (hybrid types) yield increased 40 and 24%, respectively.

Rio (orchid type) yield did not increase.

Hinklenton, P.R. 1990. NCR-101 report to the American Society Of Horticultural Sciences. pp. 1.



Does Rockwool Amended Media Improve Plant Growth?

Researchers at North Carolina State University tested plant response and nutrient uptake of 7 plant species in media with and without rockwool. A mix of 20% rockwool: 10% peatmoss: 20% vermiculite: 45% pine bark: 5% perlite resulted in significantly better growth on impatiens, marigold, and petunia than plants grown in either of 2 commercial medium. However, chrysanthemum, geranium, and poinsettia growth was better in the commercial media in 1/2 of the trials. The differences in plant growth were not related to plant nutrient uptake.

Fonteno, W.C. and P.V. Nelson. 1990. Physical properties of and plant responses to rockwool-amended media. J. Amer. Soc. Hort. Sci. 115(3):375-381.

Ethylene Improves Flowering In Triteleia laxa

Researchers at the University of California exposed dormant corms of Triteleia laxa 'Queen Fabiola' to 20 ppm ethylene for 7 days. The ethylene treatment:

- 1) promoted flowering of small corms.
- 2) encouraged earlier emergence.
- 3) resulted in earlier flowering.
- 4) increased flower number per inflorescence.
- 5) increased leaf width, length, and weight.

Han, S.S., A.H. Halevy, R.M. Sachs, and M.S. Reid. 1990. Enhancement of growth and flowering of Triteleia laxa by ethylene. J. Amer. Soc. Hort. Sci. 115(3):482-486.

Does Light Intensity Affect Plant Postharvest Life?

What effect does light intensity during production of chrysanthemum have on chrysanthemum postharvest life? University of Florida researchers grew chrysanthemums at 5400 footcandles until 8 weeks after planting. At that time they held plants at the same light level or moved them to 3240 or 1080 footcandles.

They found that day to flower increase and flower diameter decrease as light level decreased from 5400 to 1080 footcandles 8 weeks after planting. Postharvest life only decreases from 24 to 18 days when light intensity decreases from 5400 to 1080 footcandles 8 weeks after planting. In other words the light level at the end of the production cycle does not have a great effect on mum postharvest life.

Nell, T.A., R.T. Leonard, and J.E. Barrett. 1990. Production and postharvest irradiance affects acclimatization and longevity of potted chrysanthemum and poinsettia. J. Amer. Soc. Hort. Sci. 115(2):262-265.

Speeding Up Mum Breeding Programs

Several researchers at the University of Minnesota have investigated methods

to hasten time from seed to flower on perennial chrysanthemum to hasten breeding programs. The generation time in perennial chrysanthemums, from 3/4 to 1 1/2 years, has slowed breeding programs in the past. New techniques using different crossing environments and embryo rescue procedures reduced the generation time to 4 months. These findings will have a significant impact on garden mum breeding programs in the United States.

Anderson, N.O., P.D. Ascher, R.E. Widmer, and J.J. Luby. 1990. Rapid generation cycling of chrysanthemum using laboratory seed development and embryo rescue techniques. J. Amer. Soc. Hort. Sci. 115(2):329-336.

Remember!

- 1) Poinsettia, Schlumbergera, and chrysanthemum will initiate flowers naturally around September 21 when daylength will be at or less than 12 hours.
- 2) During flower initiation of each of the above crops, it is important that temperatures remain at or near 68°F. As temperatures deviate from 68°F, flower initiation may be delayed and/or flower number may be reduced.
- 3) You may want to try leaf-removal pinching on some of your crop to see how it works for you (see earlier article).
- 4) Poinsettia bract area is a function of average daily temperature. Therefore, you may want to increase your average temperatures when bracts are forming to increase the bract size on your plants.
- 5) The majority of poinsettia stem elongation occurs during the first 2-3 weeks of October. Be especially careful to control day temperatures during this period to minimize the need for growth retardants.
- 6) After pinching poinsettias, remember that any crowding of plants will reduce breaking.
- 7) Apply fungicide drenches for both pythium and rhizoctonia control during September and again in October.

- 8) Make sure that you have molybdenum in your poinsettia nutrition program.
- 8) Consider using a cool morning drop in temperature during the first 3 hours of the day for height control on your poinsettia crop.
- 9) Graphically track the height of your poinsettia crop to insure that your crop finishes at the height that you desire.
- 10) Remember that if you are growing Lilo poinsettias that any stress will reduce breaking. Therefore, be especially careful to avoid crowding and drought stress on this cultivar. This is critical during the breaking period.

Research In Progress Related To Floriculture Crops:

Applied:

- 1) Effects of day and night temperature on white fly development. (Ascerno and Erwin)
- 2) Effects of media composition on Pythium infestation of seed geranium. (Pfleger and Erwin).
- 3) Control of fuchsia and rose development through temperature fluctuations and light quality. (Erwin)
- 4) Factors affecting Regal geranium flower initiation. (Erwin)
- 5) Developing predictive tools for zonal geranium production (Erwin)
- 6) Use of blue lighting to improve orchid dry weight gain. (Erwin)
- 7) The effect of temperature and light quality on rose postharvest life. (Erwin)
- 8) The effect of day and night temperature on Asiatic lily development (development of predictive tools for Asiatic lily production) (Erwin)
- 9) Evaluation of fuchsia for heat tolerance and potential as new crops (Erwin)

Basic:

- 1) The effect of the relationship between day and night temperature on plant cell elongation and division. (Erwin and Heins)
- 2) The effect of day and night temperature on fuchsia and New Guinea impatiens nutrient uptake. (Erwin and Heins)
- 3) Physiological basis for temperature effects on plant stem elongation. (Erwin and Brenner)
- 4) Physiological basis for 'bent neck' in roses. (Markhart)

Genetics and Plant Breeding:

- 1) Breeding for heat tolerance in fuchsia (Strefeler and Darmo)
- 2) Breeding for pest resistance in rose (Strefeler)
- 3) Biotechnology application in rose production (Strefeler)
- 4) Management of genetic diversity for seed production of native plants (Strefeler)
- 5) Fuchsia genetics (Strefeler and Darmo)

University Of Minnesota News

- 1) Money has been received for renovation of The University Of Minnesota Greenhouses. Renovation will include computerization, and installation of ebb and flow benching. Other possibilities include hydroponics systems.
- 2) A full time extension assistant will be hired by October 31. This position was made possible by support funding from The Minnesota Flower Growers Association. The assistant will be responsible for consultation with growers, organization of the MFGA

Bulletin and short course, and some applied research.

3) Research will be initiated next spring on field production of cut flowers for drying. Research plots will also be allocated for incorporation of composted materials with existing soils for soil renovation. The possibility for use of composted materials for greenhouse production may also be evaluated.

4) Gary Gardner is the new department head of The Department Of Horticultural Sciences. Gary has a broad background of both applied and basic research in a wide variety of horticulture crops. He comes to The University Of Minnesota from Abbott Laboratories.

5) Mark Strefeler and myself, John Erwin, have hired or are in the process of hiring a number of individuals to become a part of the floriculture program. The hired individuals and/ or the open positions include:

- 1) Lisa Darmo - Postdoctoral Associate (floriculture breeding)
- 2) Unknown - Masters student (floriculture production)
- 3) Unknown - PhD student (floriculture production)
- 4) Unknown - PhD student (floriculture production and breeding)
- 5) Unknown - Extension Assistant (Floriculture production extension)

The information in this publication is for educational purposes only. Reference to commercial products or trade names is made with the understanding that no discrimination is intended and no endorsement is implied.

This bulletin was composed and edited by John Erwin, Assistant Professor, The University Of Minnesota, Department Of Horticultural Sciences, 1970 Folwell Ave., St. Paul, Minnesota 55108, (612)-624-9703 with the cooperation of the Minnesota commercial Flower Growers and The Minnesota Extension Service. This bulletin is distributed to members of the Minnesota Commercial Flower Growers Association. The address of The Minnesota Flower Growers Association is P.O. Box 11307, St. Paul, Minnesota 55113.