

RESEARCH UPDATE

Lori Black

Reprinted from GrowerTalks

A wheat bran inoculum of *Penicillium janthinellum* added to a pine bark container medium of Hinodegiri azalea (*Rhododendron obtusum*) controlled Phytophthora root rot.

TRY A FUNGUS TO BEAT PHYTOPHTHORA

A wheat bran inoculum of *Penicillium janthinellum* added to a pine bark container medium of Hinodegiri azalea (*Rhododendron obtusum*) controlled Phytophthora root rot. *Penicillium janthinellum* is a natural inhabitant of pine bark and, when added to the azalea medium, reduced plant mortality from 30 percent to 50 percent and increased shoot fresh weight from 31 percent to 91 percent compared to infested control plants.

Ownley, B.H. and D. M. Benson. 1992. Evaluation of *Penicillium janthinellum* as a biological control of phytophthora root rot of azalea. *J. Amer. Soc. Hort. Sci.*, 117(3):407-410.

SPECTRAL FILTERS CONTROL CHRYSANTHEMUM HEIGHT

Copper sulfate filters decreased plant height, number of leaves and internode length of Bright Golden Anne chrysanthemums. Copper sulfate solutions of 4, 8 and 16 percent reduced the natural light level of $950 \mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}$ by 26, 36 and 47 percent respectively. These filters also increased the ratios of red-to-far red and blue-to-red light transmitted to plants. Researchers concluded the effects of light quality on chrysanthemums are similar to those caused by growth regulators and that the copper sulfate filters probably suppress gibberellic acid production/action within the plant to decrease stem elongation.

Rajapakse, N.C. and J.W. Kelly. 1992. Regulation of chrysanthemum growth by spectral filters. *J. Amer. Soc. Hort. Sci.*, 117(3):481-485.

GROWTH REGULATOR SOLUTIONS COMPUTER-CALCULATED

An IBM-compatible computer program simplifies growth regulator calculations and provides information on cost per application. You can choose input cost of compounds, number of plants to be treated per container size and chemical concentration to be used. Calculations can be based on final solution needed, bench area to be sprayed or number of plants to be drenched. Chemical sprays are calculated using parts per million or percent solution. Drenches are determined using desired drench volume and rate. Solutions are calculated and mixing instructions displayed on the computer screen in both metric and English units. Commercial growers can obtain "Plant Growth Regulator Calculator" program, with users' guide, on 3 1/2- or 5 1/4-inch diskettes for a small charge from: UGA Extension Service, Management Operations, 215 Conner Hall, Athens, Georgia 30602, USA [phone (404) 542-8999].

Gilbertz, D.A. 1992. Microcomputer calculation of growth regulator solutions. *HortScience*, 27:474.

Copper sulfate filters decreased plant height, number of leaves and internode length of Bright Golden Anne chrysanthemums.

An IBM-compatible computer program simplifies growth regulator calculations and provides information on cost per application.



MECHANICAL STRESS CONTROLS PLANT HEIGHT

By brushing back-and-forth across the top 2 to 4 inches of tomato seedlings with a hollow steel bar 40 times, twice a day, for 18 days, researchers in Japan controlled growth and improved quality and conditioning of transplants. Two of the cultivars tested also showed an increase in flower count. Differences in sensitivity to brushing damage were also observed among tomato cultivars.

Tomato cultivars tested were Red Cherry, Moneymaker, Dantobi-yohzu and Furikoma, and hybrids Red Cherry x Furikoma, Moneymaker x Dantobi-yohzu and Moneymaker x Furikoma.

Johjima, T., J.G. Latimer and H. Wakita. 1992. Brushing influences transplant growth and subsequent yield of four tomato cultivars and their hybrid lines. *J. Amer. Soc. Hort. Sci.*, 117(3):384-388.

GROWING UNDER LIGHT- EMITTING DIODES

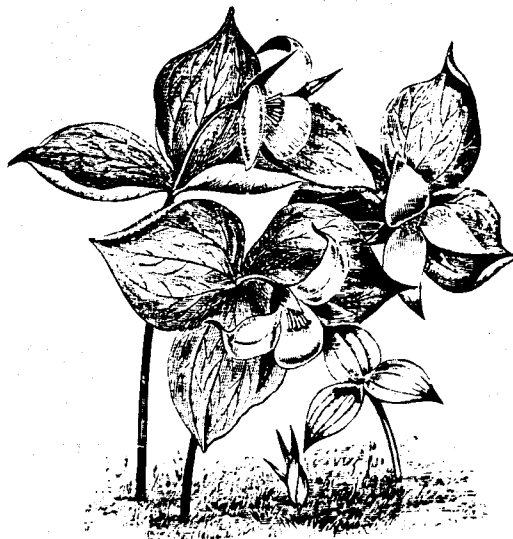
High intensity light-emitting diodes (LEDs) are being evaluated as a more efficient light source for plants. Researchers at the University of Wisconsin found adding a source of blue photons to high output red light-emitting diodes reduced elongation of lettuce seedling hypocotyls and petioles. Fifteen to 30 $\mu\text{mol}\cdot\text{s}^{-1}\cdot\text{m}^{-2}$ of blue-photon flux for 12 hours per day were adequate for lettuce growth. The blue LEDs available on the market today have very low output and do not provide enough blue-photon flux for normal plant growth. But growers can use small, fluorescent lamps that emit blue light with red LEDs to provide a good LED lighting source for plant growth.

Hoenecke, M.E., R.J. Bula and T.W. Tibbitts. 1992. Importance of "blue" photon levels for lettuce seedlings grown under red-light-emitting diodes. *HortScience*, 27(5):427-430.

INCREASE GLORIOSA ROTHSCHILDIANA VASE LIFE

Continuous treatment of 2 percent or 5 percent sucrose or a 24-hour pulse treatment of 20 percent sucrose increased vase life of fresh cut O'Brien *Gloriosa rothschildiana* flowers by allowing immature buds to develop and delaying the death of open flowers. Researchers also found vase life was extended by adding germicides 8-hydroxyquinoline citrate at 250 parts per million, sodium dichloroisocyanuric acid at 50 ppm and Physan-20 at 50 ppm. Chilling injury can occur within just three days of storing fresh cut flowers at 34°F. Fresh cut flowers can be safely stored at 50°F for up to 10 days or in an air-filled bag at 68°F for no more than six days. *Gloriosa rothschildiana* flowers are not sensitive to ethylene levels up to 0.05 ppm.

Jones, R.B. and J.K. Truett. 1992. Postharvest handling of cut *Gloriosa rothschildiana* O'Brien (Liliaceae) Flowers. *J. Amer. Soc. Hort. Sci.*, 117(3):442-445.



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High intensity light-emitting diodes (LEDs) are being evaluated as a more efficient light source for plants.

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MINNESOTA COMMERCIAL FLOWER GROWERS SHORT COURSE

Tuesday, October 27

Greenhouse Tours

- 2:00-2:45 **Pletschers Greenhouses**
Growing Range
641 Old Hwy 8 SW
New Brighton, MN
612-633-6666
- 2:45-3:15 **To Be Announced**
- 3:30-4:15 **Rosacker Floral Co.**
Growing Range
1859 NE Stinson
Minneapolis, MN
612-789-3577
- 4:30-5:00 **Koehler and Dramm**
Wholesale Florist
2407 Hennepin Ave. E
Minneapolis, MN
612-331-4141
- 5:15-5:45 **Metro Florist Supply**
Wholesale Florist
2509 W Co. Rd. B
Roseville, MN
612-635-0028

Evening Schedule

Location:
Midland Hills Country Club
2001 Fulham Street
Roseville, Mn
612-631-0440

- 6:00-6:30 **Social**
6:30-7:30 **Dinner**
7:30-8:00 **Business Meeting**
8:00- **Speaker to be Announced**

Wednesday, October 28

Location:

Midland Hills Country Club
2001 Fulham Street
Roseville, MN
612-631-0440

Moderator: Mark Wittman

- 8:00-8:45 **Ethephon Application on
Ornamentals for Chemical
Pinching**
Peter Konjoian
Konjoian's Greenhouse
- 8:45-9:15 **Regal Geranium Produc-
tion**
John Erwin & Gerard
Englen
University of Minnesota
- 9:15-9:30 **Break**
- 9:30-10:15 **Hydrangea Production**
Doug Bailey
North Carolina State Univ.
- 10:15-11:00 **Plug Germination**
Dave Koranski
Iowa State University
- 11:00-11:30 **Breeding Projects at the
University of Minnesota**
Mark Strefeler
University of Minnesota
- 11:30-12:30 **Lunch**
- Moderator: Randy Read
- 12:30-1:15 **Diagnosing Plant Problems**
James Knauss
Grace Sierra
- 1:15-2:00 **TBA**
Peter Ascher
University of Minnesota

2:00-2:25 **Factors Affecting Cut Rose Return Break Number**
John Erwin
University of Minnesota

2:25-2:45 **Factors Affecting Clematis Rooting**
Debbie Schwarze
University of Minnesota

2:45-3:00 **Break**

3:00-3:45 **Greenhouse Coverings**
Mark Strefeler
University of Minnesota

3:45-4:15 **Most Common Soil Test Problems and Tissue Test Evaluation**
Debbie Schwarze
University of Minnesota

Thursday, October 29

Moderator: Dave Hallstrom

8:00-8:45 **Post Harvest Care of Cut Roses**
Bud Markhardt
University of Minnesota

8:45-9:15 **Hanging Basket Production**
Peter Konjoian
Konjoian's Greenhouse

9:15-9:45 **Break**

9:45-10:30 **Zonal Geraniums and New Guinea Impatiens Production**
John Erwin
University of Minnesota

10:30-11:00 **Cyclamen Production**
Ron Wagner
Wagner Greenhouses, Inc.

Recertification

Moderator: Steve Maslowski

11:00-11:30 **Fertigation and Chemigation - What's New**
John Peckham
Minn. Department of Ag

11:30-11:45 **Laws and Regulations**
Wayne Dally
Minn. Department of Ag

11:45-12:45 **Lunch**

12:45-1:30 **Protective Clothing**
Wanda Olson
University of Minnesota

1:30-2:30 **Respiratory Protection When Handling Pesticides**
John Shutske
University of Minnesota

2:30-2:45 **Break**

2:45-3:45 **Greenhouse Integrated Pest Management**
Mark Ascerno - Current Insect Problems
Frank Pflieger - Disease Review - TSWV, Fungicides and Questions
John Erwin - Growth Regulators

3:45-4:15 **Waste Container Recycling**
Larry Palmer
Minn. Department of Ag



This bulletin was compiled and edited by Dr. John Erwin, Assistant Professor and Floriculture Specialist, and Debra Schwarze, Extension Floriculture Assistant, Department of Horticultural Science, University of Minnesota, 1970 Folwell Ave., St. Paul, Minnesota 55108. Phone: 612-624-9703 or 612-624-0736, FAX: 612-624-4941. Opinions and opposing comments regarding the contents of this bulletin are welcome and encouraged. This bulletin is published in cooperation with the Minnesota Flower Growers Association and the University of Minnesota Extension Service. The bulletin is distributed to members of the Minnesota Commercial Flower Growers Association. Questions regarding membership in this organization should be directed to Steve Maslowski, Malmborg's, Inc., 5120 N. Lilac Drive, Brooklyn Center, Minnesota 55429. Phone: 612-535-4695.



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