

GREENHOUSE TRAINING AT CSU

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For more than 30 years, the Colorado Greenhouse Growers have been supporting the research programs at CSU with dollars, moral and political contributions. In that time the industry has seen information on fan-and-pad cooling, clean stock, new varieties, CO², nutrition, effects of temperature, greenhouse covers, timing, selection, breeding, irrigation, etc. published in over 350 bulletins. We often forget that the contribution also supports many students in their training programs at CSU. This contribution was mentioned in the Newsletter, and as a rather interesting exercise, we have listed graduate and under-

graduate students who have received degrees from CSU, and, as far as we know, are still connected in some fashion with the business. There are probably several errors since students do not always inform us of what they are doing, and we have probably missed some of them.

Students for advanced degrees have been almost always supported by grower funds, and many of the undergraduates received scholarships from CGA. Other students have been hired as hourly labor or conducted

Table 1: Students that have received M.S. or Ph.D. Degrees from CSU, and are still connected with the greenhouse business.

Name	Location	Area of Research
Aurelio Agut	Research, Extension, Spain	Soil mixes & soil nutrition
Warren Aikin	Grower, Indiana	Photosynthesis in roses
Ralph Allstadt	Teacher, Mid-west	Nutrition on roses
Laura Barden	Consultant, California	Ethylene on carnations
Shilon Bedford	Univ. of Minnesota	Solar energy
Seward Besemer	Ext. Agent, California	Carnation economics
Robert Briggs	Jefferson County	Greenhouse covers
David Cheever	Consultant, New England	Carnation propagation
Gary Cobb	Experiment Station, Alabama	Powdery mildew
Mike Davis	University of Florida	Rapid multiplication
Andrew Eastin	Grower, California	Carnation propagation
Frank Edlin	Grower, Gunnison	Temperature control in houses
Roger Farmer	Grower, Denver	Rose production
Herb Femling	Teacher, Washington	Photosynthesis in foliage
Shannon Ferry	Teacher, Alfred, New York	Soil temperatures
Kenneth Goldsberry	Colorado State University	Carbon dioxide
James Green	Oregon State University	Nutrition on carnations
William Gunesch	Grower, Denver	
Joe Hanan	Colorado State University	Carnation temperatures
Kim Hansen	Grower, Hawaii	Temperatures on miniatures
Larry Hartman	Fairview, Carthage, Missouri	Carnation nutrition
James Hay	Oregon State University	Energy conservation
Howard Hughes	Grower, Idaho	Salinity on roses
Mary K. Jones	Extension Service, Colorado	Timing of roses
Harold Kinnamon	Grower, California	Fungicides on carnations
Richard Knappenberger	Grower, Denver	Keeping life of carnations
Don Lancaster	Grower, Arkansas	Keeping life of carnations
Walt Larsen	Grower, Grand Junction	Rose selection
Bruce Metzger	University of Wisconsin	Cyclic lighting
Felix Munoz	Teacher, Peru	Temperatures on carnations
Gary Nelson	Grower, Kentucky	Soil physical properties
James O'Shea	Teacher, Denver	
Robert Pass	Teacher, Washington	Foliage plant photosynthesis
Douglas Phillips	USDA, California	Carnation development
John Piersol	Teacher, Florida	Ethylene on keeping
S. P. Sadasivaiah	Grower, California	Carnation propagation
Kurt Schekel	Washington State University	Salinity on carnations
Robert Schmidt	Grower, Texas	Carnation temperatures
Dennis Schrock	Fruit Grower, Minnesota	Low temperatures on roses
Pat Tew Schrock	Fruit Grower, Minnesota	Bedding plant nutrition
William Sherry	Penn State University	Energy consumption
Tracy Sulzback	Florist, Denver	Effect of covers
John Tristan	Teacher, New England	Energy conservation
David Wagner	Greenhouse supplies, DWF	Carnation calyx splitting
John White	Penn. State University	Salinity on carnations

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special studies on some problem in the industry. The facilities and materials needed for their work would not have been available without support from the industry, and the vigor of our training program is directly related to the vigor of the industry. In my estimation, Colorado growers should be given a pat on the back for the contributions they have made not only to maintain a good research program in modern facilities, but to provide opportunities for the future generations. Cost of research should also include assessment of the contribution in better trained personnel.

With the rapid changes in our industry, we have continuously attempted to improve teaching and training. This year, we are contemplating some very significant changes in the program: 1) The crop production courses will be reduced from 4 credit hours each semester to three, with no laboratory. 2) A new Greenhouse Practicum course will be started, requiring six contact hours of work in the instructional and research greenhouses each week. Four credits will be required, or the student may elect 8 credit hours of Internship. Thus, we hope to improve the practical training of our students. 3) A Computer Applications course will be required as a prerequisite to the beginning course in Greenhouse Management. Discussion of computer operation and linear programming has been included in Greenhouse Management, and we feel that computer applications has reached the point that floriculture students should receive some training.

One thing we attempt is to provide all students with a good basic education which they can use regardless of what they do in the future. Among the courses required of students in Floriculture are instruction in organic and inorganic chemistry, physics, mathematics, genetics, plant pathology, entomology, breeding, plant physiology, management fundamentals, bacteriology, plant classification, speech, english and economics. In addition, a student may select electives in industrial arts, additional management courses, marketing, food technology, etc. They may do independent study or serve with industry as interns. There is no limit on what a student may do after fulfilling the basic requirements of the program, and the ability to offer additional options is made possible by contributions from the industry in the form of unstinted support and interest in what we do.

While we cannot duplicate the pressure and situations of commercial operations, the ability to hire students with your funds allows us to give them experience in the latest technology. The materials, supplies, and place for beginning research projects and growing experience usually increases interest and allows us to accomplish several objectives simultaneously.

We would welcome any additions or corrections to Tables 1 and 2.

Table 2: Undergraduate students with B.S. Degrees from CSU and still in the business.

Name	Location
Nancy Blaylock	Research, DWF
Jeanne Buck	Grower, Denver
Jim Campbell	Grower, Pueblo
Cheryl Clausen	Sales, DWF
Mel Davis	Grower, Denver
Ronald Davis	Grower, Denver
Robert Echter	Grower, Denver
Paul Ecke, III	Grower, California
James Feucht	Extension Service, Denver
Otis Fullerton	Grower, Denver
Joe Galba	Teacher, Grand Junction
Terry Gilbertson	University of Wisconsin
Anita Green	Oregon State University
Janet Gulley	Grower, Fort Collins
Richard Hannigan	Grower, Denver
Royal Heins	Michigan State University
H.E. Hill	Grower, Denver
Joe Hoener	Grower, Denver
Miguel Holle	Extension, South America
Karen Kampman	Student, Nebraska
Gordon Koon	Grower, Denver
Gordon LaMunyon	Grower, Denver
Richard Lee	Grower, California
Don Lehman	Grower, Denver
Fred Lehman	Grower, Denver
Janet Long	Grower, Arvada
Paul Massaro	Wholesale, California
Darrell Messick	Private consultant
Gary Newbloom	Grower, Denver
Mike Novoveski	Vaughn-Jacklin, Chicago
Roy Obluda	Grower, Denver
George Oki	Grower, California
Judy Maxwell Olson	Grower, Sales, Grand Junction
Jeff Ottersberg	Grower, Pueblo
Ken Patterson	Grower, Denver
Jack Pearlstein	Nurserymans' Exchange, California
John Pohly	Teacher, VocTech Center
Michael Priola	Grower, Denver
Morgan Randolph	Grower, Denver
Margaret Ratte	Grower, Denver
Rebecca Reich	Grower, Santa Fe
Niles Riese	P.R. Seed Company, Denver
Don Rody	Grower, Denver
Carolyn Rudolph	Grower, Central America
L.A. Spomer	Illinois State University, Urbana
Darrell Stapleton	Grower, Fort Collins
Frank Vetting	Rocky Mountain Seed
K.A. Vetting	Rocky Mountain Seed
Pat Wilburn	Sales, DWF
Jack Williams	Grower, Amarillo