COLORADO FLOWER GROWERS ASSOCIATION

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AMERICAN CARNATION SOCIETY BIANNUAL RESEARCH SURVEY

February 1977

David E. Hartley

This biannual survey of carnation research in North America is one of the activities of the American Carnation Society. The data has been collected and summarized by David E. Hartley, Colorado State University.

It is no surprise that most of the carnation research is being done at Colorado State University and the University of California. In recent years, since this survey began, research activities have declined rapidly in other sections of the country. Currently there are about 50 research projects pertaining to carnations. These projects are under the direction of 33 different researchers at 18 universities or institutions across North America.

In the listing that follows, a title or brief description of each project is given along with the name of the worker, and the name of the institution at which the work is being done.

Physiological Research

1. Physiological changes associated with the determination of cold hardiness in carnations. G. E. Beck, University of Wisconsin.

2. Cytological and morphological studies of carnations growing in solutions having various concentrations of boron. C. G. Woodbridge and E. W. Kalin, Washington State University.

Environmental Research

1. The responses of carnations grown under different greenhouse covers. K. L. Goldsberry, Colorado State University.

2. Soil heating for carnations. J. J. Hanan, Colorado State University.

3. Modifying cultural practices to conserve water and fertilizer use in carnation production. D. E. Hartley, Colorado State University.

4. Substitution of lighting for heat to increase production of carnations grown at lower than normal night temperatures. T. G. Byrne, University of California.

Cultural Research

Lighting

1. Continuous and cyclic lighting and the timing of carnation flowering. J. J. Hanan, Colorado State University.

2. Use of HID lights for supplemental lighting of carnations. Bill Craig, University of Guelph.

3. Supplemental lighting of carnations. H. M. Cathey, USDA, Beltsville, Maryland.

Growing Media

1. The production of carnations in pine bark/sand media. N. J. Natarella, University of Georgia.

Growth Regulators

1. Use of growth regulators to reduce stem elongation and increase stem strength of carnations. Bill Craig, University of Guelph.

2. Use of chemical growth regulators on carnations. H. M. Cathey, USDA, Beltsville, Maryland.

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Spacing

1. Comparison of lei head production at four plant spacings. P. E. Parvin, University of Hawaii.

Nutritional

1. Study of potassium deficiency induced little-leaf necrosis. Jack Paul, Harry Kohl and A. M. Kofranek, University of California, Davis.

2. Optimum phosphorus levels for carnations grown in volcanic soils. R. Nishimoto, University of Hawaii.

Pinching

1. Comparison of three pinching methods to improve breaks and induce earlier flowering on 'Improved White Sun'. Seward Besemer, University of California.

Watering

1. Irrigation frequency in relation to carnation lei head production. I-Pai Wu, University of Hawaii.

Timing

1. Flowering response of miniature carnations to lighting and temperature. D. E. Hartley, Colorado State University.

2. Single cropping of carnations for holiday production. D. E. Hartley, Colorado State University.

3. Single cropping of carnations for specific time periods. J. B. Shanks, University of Maryland.

Genetical Research

Fundamental Genetic Studies

1. The inheritance of apetaly, a type of male sterility in carnations. W. D. Holley, Colorado State University.

2. The genetic characteristics of the carnation calyx. Dale Lindgren, University of Nebraska.

3. Methods for long term storage of carnation pollen. Dale Lindgren, University of Nebraska.

New Variety Development

1. Breeding for increased production in standard and miniature carnations. W. D. Holley, Colorado State University.

2. Development and selection of carnations for four-inch pot culture. K. L. Goldsberry, Colorado State University.

3. Development of carnations with low disbudding requirements. Harry Kohl, University of California, Davis.

4. Development of varieties tolerant to Fusarium wilt and rust. Leonard C. Carrier, Encinitas, California.

5. Development of hardy perennial outdoor carnations. Dale Lindgren, University of Nebraska.

Cultural Selection

1. Selection of carnation clones for increased production and quality. D. E. Hartley and J. J. Hanan, Colorado State University.

2. Selection of carnations for low temperature tolerance. J. J. Hanan, Colorado State University.

Pathological Research

Diseases

1. Control of Fusarium and Phialophora wilts through resistance, growth regulators, fumigants, fungicides and biological control. R. R. Baker, Colorado State University.

2. Biological control of Fusarium Wilt with suppressive soils. R. R. Baker, Colorado State University.

3. Varietal resistance to Fusarium Wilt. T. Byrne and A. H. McCain, University of California, Berkeley.

4. Epidemiology of Fusarium Stem Rot of carnation. Paul E. Nelson, Pennsylvania State University.

5. Pathogenicity of Biopolaris on Carnation flowers. Arthur Engelhard, University of Florida.

Fungicides

1. Control of rust with fungicides. R. R. Baker, Colorado State University.

2. Fungicidal control of Rhizoctonia and Pythium root rots. R. D. Raabe, University of California, Berkeley.

3. Evaluation of soil fumigants for the control of Fusarium Wilt. Seward Besemer and A. H. McCain, University of California.

Viruses

1. Isolation, purification and characterization of carnation etched ring virus and virus induced inclusion bodies. R. H. Lawson and Suzanne Heaton, USDA Florist and Nursery Crops Lab, Beltsville.

Nematodes

1. Control of root-knot nematode under greenhouse growing conditions by utilization of a combination of fumigants and contact nematicides. John D. Radewald, University of California, Riverside.

Entomological Research

Chemical Controls

1. Control of leafminers, mites and thrips in carnations. Frank Morishita, University of California, Riverside.

2. Control of mites, aphids, thrips and caterpillars on carnations. William W. Allen, University of California, Berkeley.

3. Testing of new and promising insecticides/miticides on floricultural crops for efficacy and phytotoxicity. H. T. Streu, Rutgers University.

Post Harvest Research

1. The use of silver nitrate for preserving cut carnations. A. M. Kofranek, University of California, Davis.

2. Keeping quality of carnations as affected by sugar pulses before shipping. A. M. Kofranek, University of California, Davis.

3. Bud opening of carnations after long-term storage. A. M. Kofranek, University of California, Davis.

4. Reducing the effects of ethylene in handling, transporting, and storing of carnations. D. R. Dilley, Michigan State University.

5. Preservative solutions and the keeping quality of carnations. G. Staby, Ohio State University.

6. Reducing ethylene during shipping with potassium permanganate. G. Staby, Ohio State University.

7. Ethylene and Auxin effects on cut flower vase life. John Sacalis, Rutgers University.

Marketing Research

1. Analysis of economic and import marketing information for the carnation and other floricultural interests. Alvi Voigt, Pennsylvania State University.