



Colorado State Flower Growers Association

IN COOPERATION WITH COLORADO A & M
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RESUME OF ELEVENTH ANNUAL SHORT COURSE by L.T.Kintzele, Denver

More than 200 florists representing states as far west as the Pacific coast and Indiana in the east, gathered at Denver's Albany hotel February 20-22 to register for Colorado's 11th annual Short Course. Although the program was slanted to consider grower's problems primarily, there was a full afternoon session for retailers winding up the classes February 22, and other sessions of combined interest to all branches of the industry. An innovation this year was a variety display of the carnations and roses grown in the Colorado area. The wisdom of this move was evidenced by the steady stream of visitors in the exhibition room before, between and after classes, discussing the merits of varieties on display. Surprisingly, more than 100 different carnation varieties--all Colorado grown--were exhibited.

The program was officially opened by William E. Gunesch, Park-Elitch Co. research horticulturist, who did the introduction honors for the afternoon. Lead-speaker Walter R. Heald, Associate Professor, Agronomy Department at Colorado A & M College, considered the topic "Soils As I Know Them," discussing formation, composition, organic fraction and pore space. His complete paper will be published in a Colo. Growers Bulletin 18. Dr. L. T. Durrell, Dean of Arts and Sciences at Colorado A & M, well-known in this area for his ability at the lecture platform, reduced to comprehensive layman terms the processes of plant growth in his discussion of "How Plants Feed and Grow."

Guest-speaker Dr. Kenneth Post of Cornell University at Ithaca, N.Y., assigned the topic "A Look Beneath the Surface of Greenhouse Soils" pointed out that plants are most frequently

harmed immediately after transplanting either by an inadequate water supply or an over concentration of soluble salts. Newly set plants utilize all the water in the ball around their roots when moved, the ball of earth consequently shrinks and if adequate water is not provided until new roots have been established in the adjacent soil, the plant will suffer. Until there is this contact in the adjacent soil and until capillarity has been established between bench soil and soil around roots of transplanted plants, sufficient water to the new plant is a primary concern.

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Soluble salts are usually comparatively high in newly sterilized soils, particularly during the first two weeks. Leaching will help remove salts and start capillary action and high moisture content will also reduce concentration levels of the soluble salts. The ability of plant roots to absorb water is determined by soluble salt concentration; if the salt level is excessive there may be loss of water from plant to soil, and consequent wilting, despite high moisture content in the soil. Dr. Post noted that a 15% oxygen level in soil air is desirable, and that levels of 10% or below reduce rate of growth. Frequent difficulties result from inadequate oxygen and can often be traced to a saturated soil which precludes easy penetration of oxygen; or to a very rapid bacterial action, where competition for oxygen by bacteria reduced its ratio below the level needed for normal plant growth.

"What Are We Looking For in New Carnation Varieties" was the topic discussed by Dr. Gustav A. L. Mehlquist of Missouri Botanical Gardens, at St. Louis, Mo., at the evening session, February 20, and his able presentation and quick wit found a receptive audience in the carnation capital. The two prime objectives in plant breeding, according to Dr. Mehlquist, were the introduction of new varieties which would give the greatest production at the lowest cost, and which would simultaneously have the greatest sales appeal. New introductions must have suitable type of growth; must be comparatively heat tolerant, with the now widely-practiced year around indoor culture; must be free breaking and produce adequate cuttings; must have a rapid rate of return growth to produce a return crop within the best selling seasons after the first crop; and must produce low "breaks" to insure flowering of return growth for good marketing season. Digressing briefly, Dr. Mehlquist pointed out that accurate timing of carnations was difficult in view of the uncontrollable weather factor and observed that new processes for storage now being studied might be the answer to the unhappy disproportion of supply and demand, which has been an ubiquitous problem in flower production and marketing. In this event, reaction of certain varieties to storage, particularly color reaction, will determine future carnation selections. Those varieties which open satisfactorily from buds offer great storage possibilities as space conservers. We need greater disease and insect resistance in our new varieties, Dr. Mehlquist said. Some existing varieties are resistant to specific carnation diseases and it would be possible to combine these resistances in a single variety, he assured his listeners. Varieties are needed which are more tolerant to spray materials; frequently when protective sprays are sufficiently concentrated to control disease or insects, injury to plant tissue results.

Dr. Mehlquist's second point -- to breed varieties which have greatest sales appeal -- introduced a new and thought-provoking idea in the selection of new varieties. He proposed that the wants of the consumer be studied to determine future variety introduction. Pointing out that the forgotten consumer is the fourth party to a producer-wholesaler-retailer handled product, his likes and dislikes were a prime consideration. Carnations are still a funeral flower in many sections of the country, because the proper types of carnations are not being grown to lift it from this class -- or because the versatility of the carnation in home decoration and as a fashion accessory has not been adequately publicized. He noted that few commercial American varieties retain the fragrance for which the carnation was originally famous, and observed that this spicy perfume could be restored with proper breeding. Keeping quality is also a prime factor in the popularity of carnations and he urged a study of the keeping merits of varieties in the consumer homes. Consumer testing of new varieties should also be inaugurated to determine response to new and unusual varieties. These new introductions could be displayed at retail florist outlets or used in large department stores as fashion accessories.

W. D. (Bob) Holly emceed the second afternoon's session and introduced Colorado's Governor Dan Thornton, who welcomed visitors to the meeting, and lauded the flower industry, its representatives, and its high-ranking place among Colorado industries.

In his second appearance on the speaker's rostrum, Dr. Post talked about "The Handling of Cut Flowers From Bench to Vase." Experiments have proven that the inclusion of brominated charcoal in shipping containers can eliminate ethylene injury to flowers by controlling botrytis which produced ethylene, according to Dr. Post. The brominated charcoal also prevents botrytis, and controls its spread, as well as absorbing ethylene. At Cornell, experimental work is now being done on a practical method of applying this material to flowers prior to shipping.

Long term storage experiments at Cornell show great promise for the floral industry, Dr. Post reported. A prerequisite to storage is that flowers handled in this manner keep at least as long after removal from storage as fresh cut flowers. Various temperatures have been tried -- and the long-accepted 45 degree to 50 degree range has proven 15 to 20 degrees above the experimentally proven best level of 31 degrees. Carnations have been held at this temperature for six weeks and kept as well as freshly cut stock after their removal from storage. Dr. Post observed this favorable result offered great possibilities for timing to market needs. Storage at 31 degrees precludes wet storage, or storage in water, since water will freeze although the flowers will not. Dry storage has space conserving advantages over wet storage, he commented, and dry stored flowers invariably kept longer than wet-stored flowers. In wet storage, flowers grow somewhat despite low temperatures, and frequently mature too quickly when removed to room temperature; whereas dry-stored flowers after a conditioning process, live a normal life cycle equal to or longer than freshly cut flowers. Carnations, roses, chrysanthemums, and even sweetpeas have been stored in this manner with excellent results. Gladioli and orchids have not been stored too successfully at 31 degrees and daffodils did not keep well after long storage.

Flowers removed from dry-storage air-tight pack must be conditioned properly, Dr. Post warned. In most cases, stems should be cut, then immersed in water at temperature around 70 degrees; high humidity must be maintained in conditioning room to facilitate absorption of water by flowers. Low humidity speeds the rate at which flowers transpire and when this rate exceeds the rate on intake through stem, wilting occurs. He cautioned against shipping dry-stored flowers in cardboard cartons insulated with newspaper before conditioning the blooms. Both newsprint and cardboard absorb great quantities of water and might reduce water content in flowers below the point where it can be replaced.

Summing up, Dr. Post averred that flowers could be handled to better advantage by lower temperatures than they are now stored by all three branches of the trade; that storage offers better labor use in grading and handling; that use of brominated charcoal reduces injury from ethylene gas and prevents botrytis spread; that dry storage at low temperatures offers many advantages and increases life of flowers after storage; and that proper conditioning of flowers after dry storage is an absolute must.

No conditioning of flowers prior to storage was considered essential; getting flowers in a 31 degree temperature as soon as possible was the most desirable first step. A fluctuating temperature above 31 degrees in storage reduced the life of a flower after storage. Roses tended to "blue" most rapidly in a 38 to 45 degree range; while there was almost no "bluing" at 31 degrees, especially after conditioning. Circulation of air in storage to prevent stratification is very important, Dr. Post said, and a round storage pack was suggested to make easy circulation possible.

William Hubbard, Roses, Inc. Research Fellow at Colorado A & M, followed Dr. Post on the program with a discussion of "Crippled Roses, What Causes Them?" The results of his studies will be published in a future bulletin of Roses, Inc. and in the Colorado Bulletin. "Timing Studies on Carnations" by David Wagner, Colorado State Flower Growers Association Research Fellow at Colorado A & M will be published in a future issue of the Colorado growers' monthly bulletin.

The growers clinic, which wound up the second day's afternoon program played to a packed house, and experts Post, Mehlquist, Holley, Gunesch, Thomas, et al, were plied with questions until near the dinner hour.

The evening's session February 21 opened with a film on Telephone Courtesy, followed by a showing of the Colorado Carnation movie, "The Divine Flower."

Willard Crain, popular free-lance commentator, challenged his audience with the timely topic "Let's Be Reasonable." Let's be reasonable -- in our judgment of each other in the industry, Crain said. Florists are average humans whose creative interests overshadow their business acumen, particularly among growers, who strive for perfection and retailers to whom artistry is the prime objective; and the result is usually unfair and damaging criticism. Growers must understand the basis of retailing; including mark up, overhead, inventory losses, etc., and retailers should acquaint themselves with production problems, such as greenhouse investment, weather, fuel, insects, etc., he contended. The wholesaler is the liaison element in the industry, must understand the problems of both production and retail sales, and must take the lead in resolving many of the problems currently besetting the entire industry.

Our one goal is the profitable sale of flowers, Crain said, and listed the following points for the three separate branches of industry to consider.

For growers: understand and support present basis of retailing or cooperate constructively in its adjustment; fairly evaluate your production; grade correctly and honestly; keep wholesalers posted on potential overproduction and shortages; deliver stock when and as promised; expect holiday prices for only such stock as can actually be sold for the holiday, and don't pickle merchandise for the holidays; if retailing too, do it fairly; and make frequent friendly visits to wholesalers and retailers.

For retailers: sell intelligently -- avoid difficult specification; buy adequately -- don't expect wholesaler to carry your stock for you; show artistic displays in store and store windows -- public buys what it sees; visual price your merchandise; order intelligently for holidays -- proper records make this possible; pay your bills promptly and collect your accounts promptly; hire capable and pleasant sales personnel and make friendly visits to growers, wholesalers, and fellow retailers.

For wholesalers: give market guidance to growers; frankly appraise quality of stock produced by the growers; exercise better judgment on the length of period of holiday prices prior to holidays; know production trends and post retailers on surpluses and shortages; provide up to the minute information on new stock and varieties as they become available; realize your responsibility to retailers is at least equal to that of the grower -- provide research laboratory for growers and consultant for retailers; your sales personnel should know its retail accounts and the type of business they conduct; enforce credit regulations; and as pivotal points in the industry, maintain high morale in your own organization.

In planning our futures, individually and as an industry; face the fact that more people must be sold more flowers; face the fact that price is an important factor today; face the fact that the solution is up to every grower, wholesaler, and retailer, face the fact that the retailers cannot and should not have to bear the brunt of promotional expense -- national promotion of sale of flowers should find its source in the production end of the industry; face the fact that our greatest handicaps to progress lie within the industry -- lack of business ability, lack of adequate knowledge, lack of finances, lack of vision, petty jealousies, lack of intelligent cooperation with funeral directors, lack of sales ability, lack of properly trained personnel, lack of truly friendly relations among ourselves, Mr. Crain concluded.

Attendance at the final session of the Short Course, February 22, scheduled primarily for retailers was disappointingly poor. At this session, model funeral arrangements were prepared in advance and discussed in detail. The made up design work showed value of color harmony in the selection of funeral flowers which would blend tastefully in the funeral home. Need for well constructed sprays and designs to facilitate handling in the funeral home was also emphasized.

Short Course Chairman L. R. (Bud) Kintzele introduced his committee helpers Bob Holley, Bob Alenius, William Gunesch, Larry Taylor, Gus Mussenbrock, Ralph Hill, Jr., Ben Haley, Len Weirich, Ray Crowley, John Hollberg, Harry Lazier, Homer Hill, Bud Brenkert, Ray App, and Lee Kintzele, at the dinner dance, which concluded the Short Course Program. Master of ceremonies, Lee Hollberg, presented guest speakers with gifts from the Colorado growers, and introduced other dignitaries at the banquet. The remainder of the evening was reserved for dancing.

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CARNATION MOSAIC CAN SPREAD THROUGH ROOTS

W. D. Thomas, Jr., & R. R. Baker

Carnation mosaic has often been observed to spread in a circular pattern from an infected carnation plant to adjacent healthy plants. This phenomenon has given rise to speculation that the virus may be transmissible through the roots of carnation plants. Such a mode of transmission has been reported to occur with mosaic-type viruses on potatoes, tobacco, and wheat. Consequently, because the carnation mosaic virus may be transmitted with comparative ease by mechanical means, it seemed that root transmission also may be possible.

One healthy plant of carnation variety White Patrician and one plant of sweet william were transplanted to six six-inch pots of steam-sterilized soil in such manner that one plant of each species was contained within each pot. The plants in each pot were separated by glass plates to prevent contact of the leaves. The soil was covered with parafin to prevent contact of the leaves with the soil. All pots were sub-irrigated. After the plants had become established following transplanting, half of the carnation plants were inoculated with a fresh extract of carnation-mosaic virus by the abrasion technique. The remaining half were maintained as an uninoculated check. A ten-day fumigation schedule with parathion was maintained during the experiment.

Within two months following inoculation, all sweet william plants growing in pots with inoculated carnation plants had developed the systemic mottle characteristic of mosaic. No symptoms were evident on sweet william adjacent to the uninoculated carnations. Repeated tests of this type resulted in from 75 percent to 100 percent infection of the sweet william test plants. When the test was repeated under insect-proof cages, to positively eliminate possibility of insect transmission, 100 percent infection resulted. Sweet william plants adjacent to the uninoculated carnation plants always remained free from infection. The roots were examined after all tests and were found to be so completely tangled and intertwined that it was impossible to follow any individual root to its origin. Many cases were observed in which natural grafting between roots had occurred. On the basis of this evidence it was evident that transmission of the carnation mosaic virus through roots may occur.

Attempts were made to determine whether or not the virus may be transmitted through the soil solution. Pots containing infected carnation plants in gravel culture were connected by tubing to pots containing sweet william. The carnation

plants were watered periodically with a nutrient solution which was allowed to pass through the gravel into the pots of sweet william. No transmission of the mosaic was evident after 5 months. Thus it was concluded that the virus was not carried from infested plants by the soil solution.

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NEW MEMBERS

Paul L. Burgevin, Horticultural Service, Port Chester, New York.
T. Yonemoto Nursery, Sunnyvale, California.

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SYSTOX DCSAGE

The material available now contains 32.1% active ingredients. Bill Blauvelt of Cornell has tested this material to some extent and suggests the 32% material be tested commercially at from 3/4 to 1/2# per 1000 square feet of bench area. The dilution at which it is applied to the soil does not appear important. If applied with a spray rig, a trial run with water would show how far 100 or 200 gallons will go. Then the calculated amount of systox for that area can be mixed in the next tankful.

HANDLING OF FLOWERS

Ken Post brought up a very important point in his talk on this subject that is almost always a headache at holiday times. If the florist industry is to do its job well, consumer satisfaction is a must. Far too many people receive roses and other flowers during rush periods and have them wilt down to a worthless lot of junk. Why? Because we are all hurrying our handling operation. The flowers are cut too green by the grower, given insufficient water to harden them by the grower, wholesaler and retailer, and at the end the consumer is not told what to do to get the most out of her flowers. No one has told her the flowers are green or thirsty. Her home is too hot, and the half-wilted flowers just can't get enough water up through their stems to replace the loss from their leaves.

Is there not some way this customer could have a note with the flowers explaining that due to the rush of the holiday the flowers have not had the proper hardening? It might be suggested that four to six hours in warm water in a cool place will put them in a condition to give maximum enjoyment.

This problem is as much the grower's and wholesaler's as it is the retailer's. All three profit when the consumer is satisfied.

Your editor,

W.D. Holley

Christmas Pompons--1950

by Roger Farmer and W. D. Holly

Ten varieties of chrysanthemum pompons were benched September 5, 1950, spaced 8X8 inches (except var. Shasta) and grown at a night temperature of 60°F. Shasta, a thin grower, was spaced 6X8. All plants were pruned to three stems on the inside and four stems on the outside rows. One bench was planted to 10 rows each of the "66-day" varieties Shasta, Golden Herald, Gold Coast, Rubicon, and Masterpiece and given 35 long days until October 10. Another bench was planted to the "86-day" varieties Sunnyside, Seafoam, Matchless, Debonair and Long Island Beauty, and given 15 long days until September 20.

Yoder Bros. of Barberton, Ohio generously donated the plants.

Length and weight of stems, production and blooming time for these varieties are presented in the following table.

| Variety | Ave. stem length inches | Ave. Wt. in grams | Ave. wt. 27" stem grams | Ave. No. stems per 10 oz. bu. | No. 10 oz. bunches** per sq. ft. | Time of Bloom |
|-------------|-------------------------|-------------------|-------------------------|-------------------------------|----------------------------------|---------------|
| Matchless | 28.8 | 36.7 | 35.9 | 7.81 | 0.96 | 12/11-15 |
| Sunnyside | 24.9 | 35.5 | ---- | 7.91 | 0.97 | 12/11-18 |
| Seafoam | 22.9 | 37.8 | ---- | 7.41 | 0.94* | 12/ 1-9 |
| LI Beauty | 22.0 | 32.5 | ---- | 8.60 | 0.86 | 12/12-21 |
| Debonair | 32.7 | 31.4 | 29.2 | 9.57 | 0.78 | 12/15-21 |
| Shasta | 30.2 | 22.5 | 21.5 | 13.04 | 0.75 | 12/12-21 |
| Masterpiece | 25.7 | 30.9 | ---- | 9.09 | 0.81 | 12/11-15 |
| Rubicon | 24.5 | 30.4 | ---- | 9.23 | 0.76 | 12/12-18 |
| Gold.Herald | 27.5 | 33.9 | 33.1 | 8.45 | 0.91 | 12/ 6-11 |
| Gold Coast | 23.2 | 27.0 | ---- | 10.06 | 0.77 | 12/ 6-11 |

*Production of this variety reduced by six of 50 plants being stunted.

**Production calculated on 27" stems or less.

Seafoam, Long Island Beauty, Rubicon, and Gold Coast were all shorter than the desired 27 inches. All varieties were to receive 101 days from benching until the calculated blooming date, December 15. However, the varieties Seafoam, Gold Coast and Golden Herald bloomed in 90-95 days. To be on the safe side 110-115 days at this time of the year and in this climate should give adequate length on all these varieties. This number of days refers to growing days, i.e., days counted from the time the plants start to grow. If the young plants are held back by toxic conditions such as high fertility, high soluble salts, etc., more time should be allowed from benching date to blooming date.

Gold Coast and Golden Herald are more nearly "60-day" than "66-day" varieties. Seafoam would handle better if given only 80 short days before bloom instead of the previously recommended 86. The new classification of varieties now available from the Chrysanthemum Society or from Yoder Bros. takes this into consideration. Varieties are grouped according to their short day needs in intervals of seven days instead of the old 10-day grouping.

Debonair, an excellent color for the Christmas market fit the schedule in this test. A small premium in price which it should command at this time should more than equalize its lower production.