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Gladiolus Corm Treatment

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There is considerable variation in the degree of control from corm treatments from location to location and between varieties. This is especially true of dips to control disease. The author has largely used information from talks given at the recent New York meeting of the North American Commercial Gladiolus Growers and from articles published in Gladiograms the publication of the commercial gladiolus growers. The disease control information is based on reports by Dr. Robert O. Magie of the Gulf Coast Experiment Station, Bradenton, Florida and Dr. J. F. Forsberg of the Illinois Natural History Survey, Urbana, Illinois. The insect control information was in a large part supplied by George V. Johnson of the USDA Agricultural Research Service, Entomology Branch stationed at the Cornell-USDA Ornamentals Research Laboratory.

There were 340,000,000 (3) gladiolus spikes sold in 1959 as reported in the census returns. New York State marketed 841,000 dozens in 1959. There has been a decrease in the number of commercial growers in New York. Several retail flower growers have begun growing gladiolus due to the lack of local grown cut flowers.

Gladiolus varieties usually produce a high percentage of vigorous uniform spikes the first few years after introduction. After several years the corms produce an uneven crop of cut flowers with a varying number of blind or crippled shoots. This is because of disease primarily Fusarium which was mostly known as a corm rot but now is important as "running out" of the varieties. More susceptible varieties become unprofitable earlier than more resistant varieties. The main corm diseases are Fusarium corm rot, Stromatinia dry rot or neck rot, and Curvularia rot. These diseases are carried in the corms and in the soil. They build up in the soil if diseased glads are grown in the soil year after year.

The most troublesome insect pests of gladiolus are thrips and wireworms. Aphids are important as a means of spreading virus disease. Spider mites are controlled by crop spraying.

Prestorage Treatments for Disease Control

Dr. R. O. Magie (6) recommends prestorage treatments with Captan or Dowicide B. Captan 50W is used at 8-12 pounds per 100 gal. as a 15-30 minute dip or as a 12½% dust treatment. The Captan can be used on immature, soft, and freshly harvested corms. The Captan suspension must be agitated continuously and the corms soaked in open trays not closed cloth bags. This can follow washing right after digging. Either Captan or Dowicide B are recommended for well cured corms. The prestorage Captan treatment may be followed by either the Elcide 73 or Dowicide treatment before planting. Dowicide B is used at 1 pound per 100 gal. in warm weather and 1½ pounds per 1,000 gal. in cool weather, a 5 minute dip is adequate. Corms receiving the Dowicide B prestorage treatment should receive the Elcide preplant treatment. Another method is to dust immediately after cleaning with a mixture containing equal parts by weight of Captan 50W, wettable Spergon, Arasan, and 10% DDT. This may be easier for the small grower.

After digging it is especially desirable to rapidly cure the corms at 80-85°F. Clean them when the old corms break off easily and again cure for one week before putting in cold storage. Rapid curing helps prevent spread of corm diseases. Discard any lots of corms that do not look clean.

Storage Treatments for Insect Control

Thrips will feed and breed at temperatures over 60°F in storage. The best control is to store the corms at 40°F at which temperature thrips are not a problem. If low temperature storage is not available, treat the cleaned corms with 5% DDT or 1% lindane dust after cleaning and grading. The lower temperature storage is preferred because it is easier and less messy or hazardous to corm handlers.

The Hot Water Treatment for Cormels

Newer varieties grow uniformly but after 5-10 years there is much variation (7). This is due to the disease they pick up, especially Fusarium. The hot water treatment can be used to rejuvenate many varieties. In Florida the usual treatment is for ½ hour at 135°F. Before the hot water treatment, the cormels are soaked in warm water to eliminate air spaces under the husks. After the ½ hour treatment they are immediately dipped in cold water. The treatment temperatures for controlling various diseases are as follows: Stromatinia 120-130°F, Botrytis 129-130°F, and Fusarium at 139-140°F. The higher the temperature the smaller the cormels that can be treated: large to 135°F., medium to 137°F., small to 139°F., and pin

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heads to 140°F. *The cormels must be dormant for hot water treatments.* To produce small dormant cormels, dig before cormels are large (smaller cormels go into deeper dormancy), soil should not go below 65° for one month before digging. After digging store above 70-75°F (low temperatures break dormancy), hold 60-90 days before treatments, hold for 3 months after treatment in cool storage, do not treat cormels from high nitrogen or muck soils. (The hot water treatment rejuvenated varieties Corona and Leading Lady. If you are interested in more details contact Dr. Magie.) The treated stock has to be planted on clean soil.

Preplant Treatment for Disease Control

Dr. R. O. Magie recommends a preplant treatment of Elcide 73 (Eli Lilly Co.) (6) plus parathion emulsifiable liquid (4 lbs. per gal.). For each 100 gallons use 1 qt. of Elcide 73 and 1 pt. of parathion emulsifiable (do not use water base emulsifiable parathion). Use the Elcide in clean tubs or vats free from traces of other chemicals especially acidic materials. "Soak corms 15 to 30 minutes. The concentration of this solution is reduced by dipping the corms. This solution may safely be fortified as follows: After 50,000 corms are dipped per 100 gallons of solution, add one pint of Elcide 73 per 100 gallons in the tank and make up to volume with plain water. Discard solution after 3 days. If a second lot of 50,000 corms is dipped before the end of 3 days, repeat the addition of one pint Elcide and water to make up volume. To illustrate the above procedure for fortifying the solution: If the tank holds 500 gallons of solution, when 250,000 corms have been dipped (roughly equivalent to 500 trays), 5 pints of Elcide 73 are added and the volume is brought back to the 500 gallon mark. This may be repeated if another 500 trays are treated within the 3 day period. Do not hold the solution for dipping the next week's planting of corms." Elcide is preferred by many Florida growers because of its effectiveness and wider range of levels for safe treatment. Corms can be dipped in Elcide one or more days before planting. There is also less retardation of growth from the Elcide treatment than from some of the others. Some varieties respond to Elcide better than others. Corms dipped in parathion are safe to handle in planting after 2 days.

An alternate treatment is Dowicide B at 3 pounds per 100 gallons for 15-30 minutes or Dowicide B at 4 pounds per 100 gal. for 5-10 minutes.

Dr. Forsberg of Illinois has had good results (2) with Emmi or Ceresan 200 for control of Fusarium and Curvularia. Emmi is used at 1 to 400 dilution and the corms are soaked 2 hours immediately before planting. Ceresan 200 is also diluted 1 to 400 and using a 2 hour soak followed by immediate planting. Dr. Forsberg found Elcide 73 very effective on variety Elizabeth the Queen but not as effective as Emmi and Ceresan on varieties Valeria and Spic and Span.

Discard all lots of corms that are of questionable health.

Treatments at Planting Time

Dr. Forsberg at Illinois (2) found that Terrachlor 20% dust applied to the open furrow after corms were set at a rate of 200 grams to 10 feet of row or approximately 640 lbs. for 1 acre (14,500 feet of row) gave very good control of Stromatinia rot (Sclerotinia). Further testing may find lower rates to be adequate.

For wireworm control, apply 5-10% granular parathion over the corms in the open furrow. This can be done with a watering can or a suitable fertilizer spreader. The grower can spray the corms in the row with parathion. The amount to apply per acre is 15 lbs. actual or 30 lbs. of 50% W P, 15 qts. of 50% emulsifiable or 150 lbs. of 10% granular. This treatment is not necessary if the Elcide 73 parathion dip was used.

Heptachlor at 2 lbs. actual per acre can also be used over the corms in the open trench with fertilizer before setting the corms. This would be 100 lbs. of 2% granular mixed with the fertilizer that would be applied to 14,500 feet of row in 1 acre.

Both the parathion and heptachlor treatments will kill all thrips on the corms. Where large acres are treated this way, this gives adequate thrips control for the season. The treatments do not give protection to the tops, with small plantings it would be easy for gladiolus thrips to come in from nearby gladiolus plantings and reinfest the tops.

Do not plant bad corms.

References

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3. Goodrich, Dana, Talk given at N.A.C.G.G. meeting Jan. 1961.
4. Magie, R. O., A new fungicide for gladiolus corm treatment. Gladiograms *40*: 1-3, Sept. 1959, also Proc. Fla. State Hort. Soc. *71*: Oct. 1958.
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7. Magie, R. O., Talk given at N.A.C.G.G. meeting Jan. 1961.
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Board of Directors Meeting

The spring Board of Directors Meeting was held March 14 on Long Island prior to the Carnation School. Present were: Brookins, Stimming, Allen, Gugino, Dudyshyn, Schoonmaker, Arrigo, Lewis, Schloss, Dauernheim, Yedowitz, Newman, Wilton, Seeley, Langhans, Boodley and Goodrich.

President Brookins discussed some recent correspondence he had received from Mr. Ed Foster, Secretary of the Conference Board and from Dr. Paul Orvis of the State University of New York.

John Seeley reported that the Department of Floriculture had received an addition on its State budget of $25,000. This money will be used for expanding turf research work, teaching and extension. Jim Boodley reported that a new bulletin "Commercial Production of Vegetables and Flower Plants" written by Ray Sheldrake and himself was available from the mailing room. Bob Langhans showed a copy of the Carnation Manual and

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stated that this was the one that would be given out at the Carnation School and sold after the meeting.

Dana Goodrich, Professor of Marketing, told the group of his plans to work with the florist industry of New York State. His first plans are to study the flower marketing situation in the state by surveying the wholesalers, retailers and growers. After evaluating the marketing situations in the state, research will begin on ways to improve the various marketing problems.

Herb Forbach, Sr., Chairman of the Youth Education Committee reported by letter that through the Youth Education Committee T.V. Channel 13 in Buffalo will start a 13 consecutive week program on flower arranging classes. This series will be used by the Parochial Schools in the Buffalo area. He also reported that the movie film "Flower Arrangement in the Home" will be under a test program. The film will be cut into strips to be used for detailed teaching purposes.

Phil Allen, Chairman of the State Fair Committee reported that meeting dates had been set up with the State Fair officials in preparation for this years displays.

Don Schoonmaker was asked to investigate the practicability of setting up a group program, similar to the compensation insurance group, for the purpose of disseminating legal information.

John Anderson, Chairman of the Insurance group, reported by letter that the insurance group had 12 new members this past year and the gross premium was $116,000.

The next meeting will be July 12, 1961 at Ithaca, N. Y.

Membership Report

Dick Schloss, chairman of the membership committee, reported the following membership list:

ACTIVE MEMBERS New York State	381
ASSOCIATE MEMBERS New York State	181

Out-of-state Members:

Alabama	4	Mississippi	1
Alaska	1	Missouri	16
California	53	Montana	3
Colorado	12	Nebraska	1
Connecticut	43	New Hampshire	7
Delaware	4	New Jersey	42
D.C.	8	No. Carolina	15
Florida	19	Ohio	40
Georgia	5	Oklahoma	2
Hawaii	1	Oregon	8
Idaho	1	Pennsylvania	106
Illinois	23	Puerto Rico	1
Indiana	18	Rhode Island	5
Iowa	6	Tennessee	5
Kansas	3	Texas	6
Kentucky	2	Utah	2
Louisiana	1	Vermont	4
Maine	3	Virginia	5
Maryland	31	Washington	14
Massachusetts	54	West Virginia	8
Michigan	24	Wisconsin	10
Minnesota	8	Honorary Members	8

Foreign Members:

Africa	5	Holland	7
Australia	1	Italy	1
Bahamas	1	Israel	1
Belgium	6	New Zealand	1
Canada	60	Norway	6
China	1	Philippines	1
Cuba	1	Poland	1
Denmark	7	Scotland	2
Egypt	1	Spain	2
England	27	Sweden	6
Finland	6	Switzerland	2
France	3	Uruguay	1
Germany	3	Total	1348

Bing Wins Award

At recent meetings (January 20) in New York City, the North American Gladiolus Council presented their Gold Medal Award to Dr. Arthur Bing of the Department of Floriculture at Cornell University for his research contributions in gladiolus production. Dr. Bing, who is located at Cornell Ornamentals Research Laboratory at Farmingdale, has conducted extensive experiments on planting, chemical weed control, and storage methods in the production of commercial gladiolus cut flowers.

Students Study Abroad

The William Frederick Dreer Scholarship for 1961 has been awarded to Mr. M. Noble Holmes, Jr., of New Britain, Connecticut, a senior in the Department of Floriculture and Ornamental Horticulture at Cornell University.

Mr. Holmes plans to spend one year studying nursery management and practices in England and the Netherlands. In England, with headquarters at Kew and the Royal Horticultural Society's gardens at Wisley, he will visit the outstanding nurseries, concentrating on plant materials, propagation and methods of handling nursery stock. In the Netherlands he will be centered at the Boskoop Experiment Station where he will be concerned with problems of production of superior quality nursery crops.

The William Frederick Dreer Scholarship, established according to the will of Miss Augusta N. Dreer, provides $2500 to furnish worthy students specializing in floricul-

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Students

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ture or ornamental horticulture at Cornell University an opportunity to study in foreign countries.

Two awards were made in 1960. Mr. Lawrence C. Sherk of Port Calborne, Ontario, who received a Master of Science degree in August 1960 is at present studying at the Royal Botanical Garden in Edinburgh, Scotland. Mr. Martin Cohen, the second recipient, received a Bachelor of Science in June 1960, and is studying landscape design in Tokyo and Kyoto, Japan.

Carnation School

Approximately 150 people attended the Carnation School held in Massapequa, L. I., last March 15 and 16. From all of the growers we have talked with it was a very successful meeting. All of the speakers covered their subjects very well and the audience had ample opportunity to get answers to any of their questions. The tours were well planned and executed and more than two-thirds of the participating growers attended the tours of the greenhouses.

CARNATION MANUAL

As mentioned in the program for the Carnation School there was published a Carnation Manual. This manual was written by the speakers. Each of the speakers was talking on a particular subject and he also wrote a chapter on this subject. The material was compiled into the Carnation Manual. We had approximately 1,000 copies of this manual printed. This large a number of printed copies was done so as to reduce the cost of each copy. The manual has been discussed in the trade papers and we have had very favorable reports from growers who attended the meeting and received a copy of the carnation manual. We feel that anyone who is growing carnations would find it very worthwhile to read this carnation manual and keep it on hand for a constant reference. The subjects covered are: storage of cuttings, propagation, soil preparation, spacing and planting, timing, fertilization, watering, temperature and splitting, temperature control, storage and handling of flowers, soil sterilization, culturing and mother block, diseases, insects, business records and analysis and grading and marketing.

We do have copies of the Carnation Manual. The cost of each Manual is $1.25. If you wish a copy make out your check to the New York State Flower Growers Inc. and send it to the attention of Robert W. Langhans, Department of Floriculture, Cornell University, Ithaca, N. Y.

EVALUATION OF THE ONE CROP SCHOOL

We have had hardy approval of the Carnation School from the growers who attended. What we would like is a reaction from growers of other crops (roses, chrysanthemums, snapdragons, lilies, poinsettias etc.). If you would like to see a school such as the Carnation School held on *your* crop and would attend such a school, write a post card to Robert W. Langhans, Department of Floriculture, Cornell University, Ithaca, New York and just mention the crop (and any other coments you would like). If you feel this is a worthwhile venture, *send a card today.*

SHORT TAKES

Jim Boodley

The use of hydrated forms of lime is not recommended for greenhouse crops. High temperatures, good moisture levels and a shallow depth of soil are all factors common to greenhouse culture which result in a very quick reaction taking place if hydrated lime is used. Some of our flower growers have used 20 and 25 pounds of hydrated lime to 100 square feet of bench area with disastrous results to the crop. The pH changed from 4.0 to 7.8 in four weeks time. Flower crops will not tolerate such conditions so forget the hydrated lime and use the safe forms such as calcium limestone or dolomitic limestone.

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The poinsettia stock plants should be planted and growing by this time. Prune all false flowers or self-branching stems that frequently develop with new growth. As soon as the leaves develop begin a regular fertilization program so that maximum production of cuttings is obtained. Use a 20-20-20, or 25-10-10 or similar material for the first three applications two weeks apart, after this fertilize weekly using three pounds of fertilizer to 100 gallons of water. Some growers have had excellent results by starting the stock plants under intermittent mist and maintaining them this way until the mist was no longer effective as a method of watering.

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Even though it may look like winter bedding plant sales will begin in some areas of the state in less than one month. Now is the time to have your signs made that you will use to help speed up the self-service aspect of this business. Some cultural hints will be gratefully received by your customers. A neat-attractive sales area will help to increase the number of sales you will make. Maintain the fertilization of the bedding plants until they are sold. It is for the customer's benefit and that is the party you want to see come back again. A completely soluble fertilizer such as 20-20-20 at one teaspoon to one gallon of water applied at each watering results in top quality market packs.

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YOUR EDITOR,

Bob Langhans