MINNESOTA STATE FLORISTS' *Bulletin*

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Editor, Richard E. Widmer | October 1, 1957

PLASTIC GREENHOUSE TESTING

R. E. Widmer

An 18 by 20 foot plastic film greenhouse was erected on the University of Minnesota St. Paul campus in the fall of 1955. Last year Widmer (4) reported that the four mil polyethylene outer covering withstood the winter of 1955-1956 in good condition. On August 1, 1956, approximately 80 percent of the plastic still appeared to be in good condition. In September, 1956, the plastic had deteriorated to such an extent that all of it had to be replaced.

Emmert (1) of Kentucky and Thomas and Hafen (2) in Indiana recommended the use of 0.002 inch polyethylene as an outside layer of a plastic greenhouse. The 0.004 inch (four mil) polyethylene was tried in Minnesota, as it was theorized that the heavier film had a better chance of withstanding a heavy snow load.

1956-1957

The house was recovered with three thicknesses, 0.002, 0.004 and 0.006 inch, of polyethylene and 0.005 inch Polyflex 230 in early October 1956. The two mil polyethylene was used because the cost is half that of the four mil, and to determine whether it would be as satisfactory as the four mil polyethylene. The six mil film was used to determine whether the heavier material would last through two seasons, thus cutting in half the cost of labor for installation. Wallace (3) reported that Polyflex 230, a transparent plastic, showed considerable promise as a greenhouse covering. Commercial literature states "weatherometer tests have indicated that it (Polyflex 230) should last at least 10 years under normal changes of weather in a climate such as Washington, D. C."

The four films were applied to wooden rafters, two by two inches, spaced two feet apart and fastened with lath batten nailed at approximately six inch intervals. A layer of 0.002 inch polyethylene film was applied to the inside of the rafters.

According to official Weather Bureau records taken at International Airport in Minneapolis, the winter of 1956-1957 was a mild one in several respects. The lowest temperature recorded was -13° F. on January 30. The strongest wind recorded was 47 miles per hour on December 11. Snowfall totaled 39.1 inches compared to an average of 42.4 inches. The greatest amount of snow in any one month of the winter was 9.6 inches in April, and the greatest snowfall in 24 hours was 7.2 inches on April 4.

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Results

0.002 polyethylene. Holes appeared in some sections on both the north and south exposures on July 2, 1957. All sections of this material had holes or tears by July 15.

0.004 polyethylene. A hole appeared in one section on the south side of the structure on July 15. By September 11 all sections on the south side and two out of three sections on the north side were torn. The last section broke shortly thereafter.

0.006 polyethylene. Holes appeared in the sections on the south exposure by September 11, but the sections with north exposure remained intact on October 1, 1957.

0.005 Polyflex 230. One section on the south exposure ripped in early February and another section ripped seriously in May. On the north exposure, one of the two sections developed a large break on October 1.

Plant Growth

Garden chrysanthemum plants were grown in the structure in the fall of 1956, and a variety of flowering annuals as well as garden chrysanthemums were grown in the late winter and spring of 1957. Plant growth was good in all instances.

Discussion and Conclusions

Two mil polyethylene appeared just as satisfactory as the heavier films through the winter of 1956-1957, but it should be remembered that the thinner material did not get a severe test because of the relatively mild winter. Although some of the six mil polyethylene was still in good condition on October 1, one cannot be certain that this material will survive another winter. The risk of losing part or all of a crop is too great, if during the second year the material should break over night in cold weather. On the basis of these results, the four mil material would seem to be preferable where polyethylene is used.

The five mil Polyflex 230 did not prove as satisfactory as the polyethylene. In view of the higher cost of Polyflex 230, and the results with the five mil material, it cannot be recommended. Thicker films of Polyflex 230 (also called Sisal-Glaze), or other plastics now available may be more satisfactory under Minnesota climatic conditions. Further testing is necessary to provide the answer.

Although plastic film greenhouses are low in initial cost, the standard greenhouse would still appear to be a better investment over a period of years. A plastic greenhouse would seem preferable where a temporary structure is desired, where the greenhouse is used during part of the year only, in areas of especially high tax rates or in similar situations.

Unfortunately, some persons unacquainted with the culture of plants in greenhouses look upon the plastic greenhouse as a means of making a good income with a limited investment. Just as much, if not more, knowledge and experience are required to grow good commercial crops in a plastic greenhouse as to grow them in a conventional greenhouse.

References

1. Emmert, E. M. 1954. Low cost plastic greenhouses -- mimeographed. Agr. Exp. Sta., Uni. of Kentucky.

2. Thomas, M. O. and Leslie Hafen. Plastic greenhouses -- mimeographed. Dept. of Hort., Purdue Uni.

3. Wallace, R. H. 1956. Plastic greenhouses. A paper presented at A.S.H.S. meetings August 27, Uni. of Conn.

4. Widmer, R. E. 1956. Plastic film greenhouses. Minn. State Florists' Bul.: 4-6. October 1.

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SOIL TESTING AND RECENT FERTILIZER DEVELOPMENTS

R. E. Widmer

The use of new fertilizer materials such as ureaform sources of nitrogen (Borden's 38, Nitroform and Uramite) and fritted potash, and the trend toward fertilizing, with the aid of proportioners, every time water is applied to the soil must be considered when thinking of soil testing. The principle behind these two methods of fertilizing is to provide a moderate but steady flow of nutrients to the plant because the plant is constantly "feeding."

Ureaform and fritted potash fertilizers release nitrogen and potash gradually over a relatively long period of time. As a result the supply of available nitrogen and potash in a soil, as indicated by a soil analysis, would appear to be relatively low. Despite this fact it is possible to injure plants by adding either or both of these materials in excessive quantities, or by adding these materials to soils which already contain adequate quantities of the nutrients being added. By the same token, adding regular chemical fertilizers, such as ammonium sulfate, ammonium nitrate and muriate or sulfate of potash, to a soil which already contains an adequate supply of ureaform or fritted potash or both can also result in plant injury. The fact that the fertilizers which become available to plants slowly will not leach out of the soil should also be considered.

Does all this mean that we should avoid the use of fertilizers which are available slowly over a period of time? Not at all. It does mean that full information including types of fertilizer, quantity applied and dates of application should be furnished when a soil is sent in for analysis. Erroneous recommendations can be made if full details are not provided. The use of slowly available fertilizers can result in the production of high quality crops accompanied by a saving in labor, and they should be given full consideration by the grower. Such fertilizers should not be mixed in a soil before sterilization, however, nor should they be mixed in a soil that is to be stockpiled as an excess of available nutrients may develop in the soil.

The water requirement of a plant is a good guide to its fertilizer requirement. For example, fast growing plants, plants grown in full sun and plants grown at higher temperatures usually require more water than do slow growing plants, plants grown in reduced light intensities and plants grown at low temperatures. The nutrient requirement is also proportionately greater. Therefore, why not apply a weak fertilizer solution every time water is needed, thus providing a constant nutrient supply and avoiding the build-up of excesses as well as saving labor? The availability of accurate dependable proportioners has made this system a reality.

It would seem that such a system eliminates the need for soil analysis, but such is not the case. A build-up of salts may still take place in the soil if a grower, possibly wishing to avoid the waste of fertilizer, does not apply enough solution to wet the soil thoroughly and have a little of the excess drip out at the bottom. The possibility of a salt build-up in the soil is increased if the water supply is high in salts. Soil pH may be seriously altered with prolonged use of any particular fertilizer if the water used is especially high or low in pH. A periodic soil test will help to point out any marked changes in pH or soil nutrient levels before plant symptoms develop.

These new methods of furnishing nutrients to the plant make possible more efficient crop production, but the grower must not let down his guard and assume that growing is an automatic operation. Failure to take advantage of available new developments and to check growing conditions with aids such as soil tests can be the cause of reduced crop quality and financial return.

In case of trouble, analysis of the soil is often advisable. If the seat of the trouble is connected with soil nutrient levels, a quick answer is often obtained. If soil nutrient levels are not the source of the trouble, one possible cause has been eliminated and other causes may be investigated. Other factors connected with the soil which may be conducive to poor plant growth include poor drainage, too heavy a soil, poor water holding capacity, faulty watering, cold (ground beds) or excessively warm (heating pipes against ground beds or too close to the bench bottom) soil, soil insects, nematodes and soil borne diseases.

Quantity and nature of fertilizer materials added to the soil are governed by many factors in addition to soil nutrient levels and include depth of soil, type of soil, size and growth rate of the plant, season of the year, light intensity, method of watering and physical condition of the soil.

One of the most important factors to consider in connection with soil testing remains the same--the method of sampling. The sample of soil which is analyzed is much less than one percent of the soil it represents, yet recommendations are made on the basis of this small sample. It must be representative to be of any value. Variations in nutrient levels occur from one spot to another in a bench or for that matter from pot to pot or in different areas of the soil mass from one pot. The soil sample should be taken from at least six and preferably 10 locations where the plants are growing uniformly and mixed together for testing purposes. A separate sample should be taken in the same manner from areas where plants are doing poorly, or do not compare to the better plants nearby. Fertilizers or mulch on the surface should be scraped away before a sample is taken, and the samples should be taken from all levels in which the plant roots grow, down to about 6 inches below the surface in ground beds.

Soil testing is not a cure-all for all conditions, but it can be of considerable assistance when properly used.

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EASTER LILY BULB DIP

Dr. Gail Beck of the University of Wisconsin suggests that Easter lily bulbs be dipped in a combination insecticide, fungicide mixture for best results. A 30-minute dip in the following mixture provided the best results in his trials.

4 oz. 15% W. parathion
2½ oz. ferbam
2½ oz. Terraclor

} in 10 gallons of water

The solution may be used for three or four batches of bulbs before it should be renewed.

NEW RESEARCH

The following articles are summaries of papers presented at the American Society for Horticultural Science meetings at Stanford University, Palo Alto, California, on August 26, 27, 28, 1957.

Comparison of Hyperfog and Pad Systems for Greenhouse Cooling. W. J. Carpenter and W. W. Willis (Kansas State College). Greenhouse sections, each 1176 square feet, were equipped with various systems for greenhouse cooling. One section was cooled by the high pressure (hyperfog) fog system with, hydraulic pressures of 1000 P.S.I. maintained to create a fog-like mist from the high pressure Steinen No. 60-120° SS nozzles. Another section was cooled by the fan and pad method. Readings were made as follows:

System	Light	Temp.	Humidity	Variation in temp. within house
Fan and pad	shade (6000 fc. max)	86° F.	76.%	4.6° F.
Fan and pad	no shade	91° F.	60.%	6.5° F.
Hyperfog	shade (6000 fc. max)	81° F.	100.%	2.1° F.
Hyperfog	no shade	86° F.	100.%	4.0° F.

Hyperfog with mist lines just inside the side ventilators worked well until 11 a.m. Additional nozzles 8 feet above the ground level and at 4-foot intervals were necessary between 11 a.m. and 3 p.m. to keep the relative humidity above 85 percent. It was noted that an excess of fog interfered with air movement in the greenhouse.

Crop Timing of Carnations with Air Conditioning. W. D. Holley (Colorado State University). In greenhouses cooled by exhaust fans and evaporative pads, rooted cuttings of Pink Sims and Gayety were ready to pinch two weeks after planting. The time from first pinch to first crop for all plantings was approximately the same as for uncooled carnations. Lateral breaks which produced the second crop originated earlier and grew much faster in cooled greenhouses, reducing the time between crops by four to six weeks over previous timing schedules. A yield increase of approximately one-third came mainly in a six-week early winter period. Too many breaks per plant developed and flower grade during the winter was seriously lowered, when compared to that of uncooled carnations.

Growth and Flowering of Hydrangea Macrophylla as Influenced by Storage Temperature, Length of Storage and Gibberellic Acid. N. W. Stuart (U.S.D.A., Beltsville, Maryland). Hydrangea plants stored at 35°, 40°, 45° and 50° F. for four, five, six and seven weeks produced longest stems and bloomed earliest following storage at 40° F. or lower for six weeks or longer. Flower size increased and the number of flowering shoots decreased as less time was required for flowering. Increased vegetative growth and accelerated flowering of hydrangeas were induced by gibberellic acid. Gibberellic acid applied at the rate of 50 ppm could substitute for cold storage in breaking dormancy, but better quality plants resulted when an application of 10 ppm gibberellic acid replaced only a portion of the cold period (four weeks of cool treatment was recommended).

Effects of Gibberellin on the Flowering of Stocks (Matthiola incana). R. S. Lindstrom and S. H. Wittwer (Michigan State University). Gibberellin has promoted earlier flowering and greater stem elongation in column stocks (*Matthiola incana* varieties, No. 1 Ball Lilac Lavendar Improved, No. 5 Ball Dwarf White, No. 16 Ball White Medium Tall, No. 22 Ball Supreme) grown in the greenhouse from August to May. Weekly applications of 5 to 20 micrograms per plant, or foliage sprays of 100 to 1000 ppm for 3 to 10 consecutive weeks were effective. A hastening of flowering, as determined by leaf number as well as days to first anthesis, resulted if treatments were initiated as early as the 2-leaf or as late as the 12-leaf stage. Earlier flowering followed single applications of gibberellin, but responses were not as striking as when the treatments were repeated. Marked differences in responses occurred with varieties, season of the year, temperature, stage of growth at initial treatment, and quantities of gibberellin applied. Treated plants were of acceptable quality as to stem diameter, length of flower spike, and matured with greater uniformity than plants not treated.

Effectiveness of Gibberellic Acid in Controlling Growth of Chrysanthemum morifolium (Ramat.). H. M. Cathey and N. W. Stuart (U.S.D.A., Beltsville, Maryland). On long photoperiods, the vegetative response to gibberellic acid was quantitative. The period of maximum elongation of the main axis occurred in the second to third week of short days and of peduncle elongation in the fourth to fifth week. Continuous application of gibberellic acid from the fourth to the sixth week of short days accelerated the development of the flower, this occurred at 50°, 60°, or 70° F. The apical region was found to be the most effective area for application of gibberellic acid. Treatment of the mother plant with gibberellic acid suppressed the rooting of the ensuing cuttings; IBA (indole butyric acid) promoted the formation of approximately the same number of roots as were formed on the cuttings not treated with gibberellic acid.

Grading of Carnations, Chrysanthemums and Snapdragons in Relation to Economic Marketing Conditions in Spokane, Washington. David J. Ballantyne, E. W. Kalin and A. H. Harrington (Washington State College). Three growers in the Spokane, Washington, area graded carnations, pompons and snapdragons in accordance with Society of American Florists' Standard Grades. Weekly sales records were supplied by the two wholesale florists. Prices and dumping rates were calculated from these records. The market developed significant price differences for carnations between all grades except between Special (top grade) and Fancy (next to the top) grade. Graded local carnations had a market gain of 0.08 cents per flower over ungraded local carnations when the cost of grading was considered. The market gain of graded over ungraded carnations tended to increase as the quality of graded carnations increased. Retail florists were contacted by interviews and questionnaires. Retailers objected to the four-stem Special (top grade) pompon bunch, and the small First (lowest) grade pompon bunch. Many retailers were not as interested in quality as quantity in pompons. Out-of-town retailers liked being able to order by grade. The necessity of stricter supervision of the grades was indicated.

Nitrogen and Potassium Nutrition of Chrysanthemum. O. R. Lunt and A. M. Kofranek (University of California, Los Angeles). At deficient levels of potassium maturity is delayed and flower size is reduced. As potassium deficiency becomes more advanced, flowering is more delayed, stem weight (indication of quality) is reduced, dry weight per leaf is lowered and crooked stems develop. Potassium deficiency may be present before leaf symptoms appear. An exceptionally high nitrogen supply causes a brittle leaf condition. Once adequate amounts of nitrogen and potassium are supplied, wide variations in the relative amounts of these nutrients had little effect on the quality of the flowers.

Factors Affecting Flower Bud Initiation and Differentiation of Chrysanthemum morifolium. A. P. Chan (Central Experimental Farm, Ottawa). The range of mineral nutrition in which chrysanthemums can initiate and differentiate flower buds is very wide. Highly succulent plants did not require more time for blooming than did those which were hard and woody.

Experiments were conducted with the varieties Popcorn, Gold Coast, Masterpiece, Shasta, Little America, Encore, Highbrow and Vibrant. Night temperatures only are referred to in this report. The varieties most sensitive to the lower temperatures (48° and 53° F.) were Encore and Highbrow. Little America was intermediate in response. The critical point for the temperature-sensitive varieties appears to be somewhere between 53° and 60° F. The temperature during the differentiation period is much more effective than during receptacle initiation in determining the time required for blooming. A temperature of 75° F. during the differentiation period halted flower bud formation in the varieties Highbrow and Vibrant and delayed in the other varieties. Plants exposed to 50° F. prior to induction or during induction were delayed substantially in flower bud development. Vernalization (low temperature treatment) is not necessary or desirable for rapid flowering of greenhouse varieties. In working with 23 garden varieties, only Apache required vernalization. Plants of this variety were kept for two years in a rosetted condition by maintaining a 60° F. minimum temperature. Three weeks at 42° F. was sufficient for the plants to resume normal growth.

Reduction of light intensity to 30 percent of that available delayed but did not arrest flower development. The response of chrysanthemums to variations in the intensity and duration of supplementary illumination was variable. In general, higher intensities and longer periods delayed flowering. While it is generally accepted that chrysanthemums are strongly determinate short-day plants, many garden varieties can bloom under long day conditions if temperature is not a limiting factor.

<u>A Chemical Treatment to Prevent Ageotropism in Snapdragons</u>. T. J. Sheehan and H. J. Teas (Florida Agricultural Experiment Station, Gainesville). One of the problems that has prevented the shipment of single snapdragons to distant points is the ageotropic bending that occurs if the stems are kept in a horizontal position for even a few hours. Double snapdragons do not show much aegotropic bending. It was found that treatment of single snapdragon stems with a 10-4 M solution of N-1 Naphthylphthalamate for three hours inhibited bending for more than 48 hours. The amount of bending of treated stems that did take place did not hinder the sale of the flowers.

<u>Some Effects of Soluble Salts and Soil Moistures on Carnation Growth</u>. J. W. White and W. D. Holley (Colorado State University). White Sim carnations were grown for nine months in a sandy loam soil and subjected to soluble salt levels of 25 to 141. Basic nutrients were included in the soluble salts. A steady decrease in flower yield and quality accompanied increases in the soluble salt level. For each addition in soluble salts of 10, mean grade decreased .093 of a Quality Index unit and yield decreased 0.3 of a flower per square foot. A soluble salt level below 50, preferably as low as 35, was recommended. Moisture differences did not significantly affect yield or grade of flowers. Neither salt nor moisture levels significantly affected the cut flower life.

<u>Some Effects of Night Temperatures on Carnations</u>. R. G. Schmidt and W. D. Holley (Colorado State University). Red Gayety carnations were grown at night temperatures of 48, 50, 52 and 54° F., with controlled day temperatures. Color of the flowers was most intense at 54° and least at 48°. Yield and mean grade of flowers were not significantly different. Better flower form was associated with the warmer temperatures. (Editor's note: Results may not be the same under Minnesota growing conditions.)

<u>The Effects of Some Chemicals on the Defoliation of Hydrangea Hortansis</u>. A. M. Kofranek and A. T. Leiser (University of California, Los Angeles). Vapam vapors or merphos sprays on Europa and Hamburg varieties of hydrangeas show promise in rapid defoliation. Almost complete defoliation was obtained eight

days after treatment with either of these materials. The plants forced normally with no after effects due to treatment. Vapam was not easy to work with because an enclosed area is required for treatment, but merphos at the rate of one part per million was easier to apply to the plants.

Comparison of Incandescent and Fluorescent Lamps for Lengthening Photoperiods. R. J. Downs, H. A. Borthwick and A. A. Piringer (U.S.D.A. Beltsville, Maryland). Light sources were 100-watt incandescent lamps or 30-watt standard cool white fluorescent tubes so spaced as to provide 30 foot-candles of illumination at plant level. Both sources induced flowering of certain long-day plants, but the incandescent light increased the rate of stem elongation and accelerated maturity. Incandescent lamps emit considerable far-red-radiant energy, whereas fluorescent lamps are almost devoid of it. The increased elongation and accelerated maturity of the plants exposed to incandescent light are attributed to greater emission of far red.

Influence of Leaf Clipping and Flower Removal on Weight of Gladiolus Corms. O. C. Compton (Oregon State College). Corm weights were reduced progressively as leaf tip removal, in two-inch increments, increased to a maximum of eight inches. The three-year average reduction for two varieties was 38 percent for the maximum severity of clipping. When clippings were made only at flower spiking, the eight-inch clipping reduced corm weight 22 percent. Commercial flower cutting, which removes a portion of the leaf area with the spike, was the only flower removal treatment that reduced corm weights.

Effects of Temperature Variation on Forced Lilium Longiflorum Var. Ace. H. C. Kohl Jr. (University of California, Los Angeles). Ace lilies were forced at three different temperatures, outdoors (approximately 48° F.), 60 and 68° F. and various combinations of the three temperatures for one third of the forcing period at a time. From a practical standpoint the plants which were grown at 60° F., followed by 48° and finally 68° F., were the most salable, mainly because they were short with a high bud count. Furthermore, they bloomed only a week later than the next best treatment which received the usual 60° F. temperature.

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EDUCATIONAL TV

The Institute of Agriculture of the University of Minnesota is sponsoring a 30-minute program entitled Town and Country each Thursday at 9:30 p.m. on KCTA-TV - Channel 2. Ray Wolf of the University is master of ceremonies as various Institute of Agriculture staff members discuss timely subjects of interest to the general public. A generous portion of the program is devoted to horticulture. This type of program should be of considerable interest to florists.

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NEW PUBLICATION

Michigan State University has issued Special Bulletin 412 entitled Merchandising in Retail Flower Shops. Authors Von Oppenfeld, Schwartz and Krone present a wealth of information on merchandising practices, publicity, commercial advertising, store policy, characteristics of flower customers and many other subjects connected with merchandising in this 28-page illustrated bulletin. Obtain your copy by writing to the Bulletin Room, Michigan State University, East Lansing, Michigan.

WHAT TO USE?*

There seems to be considerable confusion concerning the type of fungicide that is best to use for the various fungous problems of ornamental plants. A. W. Dimock, of the department of plant pathology at Cornell University, has boiled down the answers as follows:

Captan (Orthocide, Captan Fungicide) is good against most leaf spots and pythium in soil; is good against botrytis blight, rhizoctonia in soil, and is poor against true rusts and ineffective against powdery mildews, bacteria. It is safe as a foliage spray, but some injury results to peppers, tomatoes and petunias from soil application.

Dinitros (Karathane, Mildex) are good against powdery mildews, but are ineffective against everything else. At high temperatures, a burning is apt to occur.

Ferbam (Fermate, Karbam Black, Nu-Leaf Black, Ferradow) materials provide good protection against most leaf spots, true rusts and rhizoctonia in soil, but are ineffective against powdery mildews and bacteria. Ferbam is a safe material and is recommended for early-season sprays on chrysanthemums and for crops that commonly show iron deficiencies. It contains iron that is partly available to plants.

Ziram (Zerlate, Karbam White, Opalate White) has about the same range of effectiveness as ferbam, but it does not supply iron and the zinc in the material is somewhat harmful to some ornamentals; hence, it is not recommended for ornamentals.

Zineb (Parzate, Dithane Z-78, Dithane D-14 plus zinc sulphate, Parzate liquid plus zinc sulphate, Ortho Zineb, Thiodow-Powder) materials are outstanding against true rusts and good against most leaf spots. They are also good against botrytis blights and rhizoctonia in soil, but are ineffective against powdery mildews and bacteria. Zineb possesses the widest range of protection against fungi, but there is a slight tendency to injure some plants at high temperatures and with slow drying.

Maneb (Dithane M-22, Manzate) provides about the same range of usefulness as zineb, but it is safer on plants that are subject to zinc injury. It is especially good on rose black-spot.

Nitrobenzenes (PCNB, Terraclor) materials are outstanding against rhizoctonia in the soil and good against sclerotium crown rot, but ineffective against pythium in the soil. They are considered effective, persistent and reasonably safe for checking the spread of rhizoctonia in established benches or pots.

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WORTH HAVING

For anything worth having one must pay the price; and the price is always work, patience, love, self-sacrifice--no paper currency, no promises to pay, but the gold of real service.--John Burroughs

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*Taken from Florists' Review, August 30, 1956.

GARDENING

I have often thought that if heaven had given me choice of my position and calling, it should have been on a rich spot of earth, well watered, and near a good market for the productions of the garden. No occupation is so delightful to me as the culture of the earth, and no culture comparable to that of the garden. Such a variety of subjects, some one always coming to perfection, the failure of one thing repaired by the success of another, and instead of one harvest a continued one throughout the year. Under a total want of demand except for our family table, I am still devoted to the garden. But though an old man, I am but a young gardener.--Thomas Jefferson

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RESEARCH ITEM*

A study of 1152 randomly selected families by Penn State University reveals that only 56% made at least one gift purchase of flowers in a year. Purchases by men were more common than by women. Only 35% made more than one purchase per year and 12% made three or more purchases per year. Occasions, ranked in their order of importance, for which such purchases were made are: Easter, illness, Mother's Day, birthday, appreciation, wedding anniversary, and St. Valentine's Day.

Conclusion: There is a vast market for gift flowers which has not yet been fully exploited. More emphasis is needed on the desirability of flowers as a gift.

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*S.A.F. Timely Tips. September 15, 1957.

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