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Annotated Bibliography of Floriculture and Ornamental Horticulture
Marketing and Other Economic Information
This bibliography supersedes a similar bibliography, AMS-136, June 1959, by Alvin Z. Mocamber and Elmer J. Moore. Three features have been added that will make the bibliography easier to use. First, the U.S. Department of Agriculture library numbers are given for publications available in the library. Second, brief annotations follow most listings. Third, a numerical listing by subject matter is included at the end of the bibliography.

It is not known whether all the publications listed are still available from the publishers. The Department of Agriculture has supplies available of many recent Department publications; most others may be found in major libraries. Those issued elsewhere should be requested from the publisher.

An effort was made to include all research reports and articles pertinent to marketing and other economic information for floriculture and ornamental horticulture published after June 1959. However, listings of items overlooked, particularly if accompanied by abstracts, will be welcomed. These should be sent to the Market Development Branch, Marketing Economics Division, Economic Research Service, U.S. Department of Agriculture, Washington, D.C. 20250. When sufficient additions are received, a supplement to the bibliography will be issued. Biological and physiological research publications were not included, and no attempt was made to include reports published prior to June 1959 other than those included in previous bibliographies. This bibliography is intended primarily for researchers in marketing and other aspects of the floral industry. It should also be useful to others in the industry who need to consult marketing research material.

Oliver M. Shipley, Division of Reference, National Agricultural Library, U.S. Department of Agriculture, collaborated in planning and developing this bibliography.

The compilation was done under the general supervision of Peter L. Henderson, Acting Chief, Market Development Branch, Marketing Economics Division, Economic Research Service, U.S. Department of Agriculture.

March 1967
ANOTATED BIBLIOGRAPHY OF FLORICULTURE AND ORNAMENTAL HORTICULTURE -- MARKETING AND OTHER ECONOMIC INFORMATION

Compiled by Cleveland P. Eley
Agricultural Economist
Marketing Economics Division

   A cost analysis of data obtained from 28 representative nurseries located in California.

   An analysis of the operations of 16 seed companies with emphasis on cost and return to the grower.

   Describes proper handling and packaging methods for protecting cut flowers in transit.

   Growers, wholesalers, commission men, and retailers located in the New York metropolitan area were interviewed to determine what factors were related to the decline in volume of business. It was concluded that market facilities were inadequate for growth.

   Author discusses a number of practices that his firm has successfully adopted: (1) Departmentalized landscaping, garden store, and nursery, (2) kept work records separate, (3) promoted efficiency in all phases and departments, (4) carefully selected varieties of plants, (5) maintained realistic prices, (6) labeled fertilizer bags as to analysis of content, and (7) practiced personnel development.

   Stresses quality, maintenance, and greater variety of products to meet consumer demands.
Ohio test marketing results point out packaging methods, seasonal variations, losses, preferred varieties, demand, and markup used.

Conclusions derived from the study fall into three categories: (1) Consumers do have a favorable attitude toward nursery plants. (2) Knowledge about the use and care of nursery products is somewhat limited. (3) There is a need for dissemination of information on landscaping among homeowners.

Compares retail florist reactions to graded and ungraded carnations. Graded flowers were more acceptable.

Grading offers a measure of quality control in some marketing situations and is worthwhile for producers of quality stock. Price differences were found between graded and ungraded stock.

Reissue of 1950 report. Effects of simulated altitude, temperature, and humidity changes on air cargo flower shipments.

Points out how better organization and large-scale operation might result in more efficient business operation.

 Tells how the threat of overproduction in British bulb industry caused a group of growers to join together for the purpose of promoting British bulbs. Enumerates some of the activities of the group.

The panel recommended that wholesale dealers provide promotional and consumer educational materials to retailers for their customers. Most consumers are not as well informed about characteristics of species and varieties as they should be in order to make sound purchasing decisions.

Enumerates the many problems to be solved before flowers can be successfully sold in food market outlets.
Describes status, development, and potential of flower production and sales.

Discusses Wisconsin flower growers, wholesalers, and retailers.

Marketing research offers answers to problems of increased volume and costs. Uniform grades would aid in evaluating consignment reports and changing market conditions.

Proposes a modernized marketing system to remedy the ills of the consignment system.

Discusses Wisconsin flower growers, wholesalers, and retailers.

Describes grades and standards as tools used by other agricultural industries. Summarizes advantages and disadvantages of using grades and standards.

Relates the buying and selling practices of five Milwaukee firms to their sales volume.

Compares containers, packing methods, and conditioning of flowers before shipment and after arrival. Cut flowers that were free from aging problems when shipped, arrived in good condition regardless of shipping method used.

Describes changing patterns of production, competition, costs, automation, fertilization, and technology.

Describes market structure, practices and advertising; also discusses the implication of the lack of grades and standards in the industry.


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Describes marketing practices and problems of Florida foliage plant growers. Cites the need for cooperative action among growers.


The price index for roses was generally higher than that for the 40 basic commodities in the twenties; however, prices dropped in the early thirties and never regained their former position.


Includes information on Florida's growing flower, nursery, and citrus industries.


Six points are listed as an aid to take the grower out of the category of an order-taker: (1) Improve personal salesmanship, (2) develop a reputation for quality, (3) give buyers credit for doing a good job, (4) handle product with care, (5) stop trying to run the other man's business, and (6) promote product by advertising.


Article taken from a paper presented by Dr. Brunk at a New York State flower growers' short course. Discusses the part price plays in regulating production; points out that price and quality are partners and that price is a motivator of consumption.


Impulse sales of cut flowers offer potential means of creating new market demand in supermarkets and variety stores. Emphasizes need for uniform grades, orderly marketing procedures, and price stability.


Discusses prerequisites for successful self-service selling of cut flowers including methods of prolonging shelf life and specific procedures for packaging.


Description of the growth, development, and economic implications of the Florida fern and foliage industry.


Part I. Basic supermarket marketing practices are not applicable to the florist business. Presents promotional ideas useful in selling flowers.

Part II. Correct packaging is one merchandising tool the floral industry can use for increased sales. The theory assumes higher sales and lower operating costs.

Part III. Cash and carry price competition is not for florists. Pre-packaging offers the florist an opportunity to raise volume with reduced costs.
   Describes the marketing practices and policies of nonfloral retail outlets in West Virginia that sell horticultural specialties as side-line products.

   Author recalls the following factors that gave nurseries a boost: (1) Sales of bare root plants in spring and summer or off season, (2) passage of the Federal Housing Administration Bill, (3) demonstrations at the 1939 World's Fair, (4) development of new varieties of lilacs and flowering quinces, (5) development of the peace rose, and (6) development of the complete garden store in the 1950's.

   The new aqua-pak is a container especially designed to sell flowers in mass markets for home use. It is low cost, and easy to handle for both seller and purchaser. In a consumer reaction test more than 90 percent of the recipients of flowers in the new pack made favorable comments about it.

   Description of a new low-cost package designed for flower sales in mass markets.


   Grade standards are proposed for Florida plants.

   Increased sales is a solution to the florist's problems. Stresses need for marketing research to provide reliable information for expanding sales volume.

   A report of shipments of nursery stocks by 217 nurseries from various provinces in Canada.

   Reviews current industry status, and relates distribution and service patterns to sale of ornamentals. Also identifies areas needing marketing and facility studies.

   An economic analysis of the Florida fern industry which furnishes approximately 95 percent of the total U.S. fern supply. Special emphasis is placed on the effect of supply and quality of production, and on market outlets utilized.

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Author suggests the following practices for increasing sales and profits in retail seed stores and garden centers: Select a good supplier, adopt progressive merchandising practices, and treat customers as intelligent people.


Gives information on how flowers should be handled when shipped by air.


Improved loading and packaging techniques cut bare-root freeze damage in rail cars and truck shipments.


Summarizes expenditures of a sample of 505 homeowners in the Portland, Oreg. area for nursery stock, grass and flower seeds, and supplies and equipment.


Bedding plant growers have a variety of containers from which to choose. Selection is important—pointers to keep in mind include: Market outlets, consumers' preferences, transportation, and general economic conditions.


Discusses the market potential for cut flowers in the event that mass marketing techniques are adopted by the industry.


Points out that the fundamental problem of the industry is the lack of satisfactory markets for the increasing output of flowers.


Appraises the institutional and economic factors affecting the cut flower industry and the possibility of expanding production and markets.


Transportation costs have very little effect on the demand for cut flowers.


Describes the market for flowering pot plants during the pre-Easter week in the Rochester, N.Y. area. Nonflorist outlets sold 44 percent of flowering pot plants; retail florist outlets, 56 percent.

A 1-year pilot study of two mass outlets, a supermarket and a variety store, to gain some insight into consumers' preferences as to type, kind, price, and size of flowers or plants consumers felt were best adapted to home use. It was determined early in the study that shorter stemmed flowers and smaller sized potted plants were needed for mass outlets.


Points out changes that have taken place in marketing. Recommends that growers, wholesalers, and retailers join in promoting new uses for flowers.


Reports of flower and potted plant sales test in two mass market outlets. Some obstacles were encountered which needed to be overcome before flowers could be marketed successfully in mass outlets on a large scale.


A study of marketing and business management practices of 46 Texas retail florists. It was found that many florist had poor cost and sales records, lacked knowledge of new developments, and lacked enthusiasm toward building a better business.


Discusses good business management practices and how they can be adopted in the retail florist business.


A survey of Connecticut florists showed that progressive sales methods plus an interest in the business is required to expand sales volume. Stresses need to relate demand factors affecting retail sales to proper types of outlets.


Increasing volume of cut flower production since the late forties has given rise to a well developed wholesale marketing system. Economic conditions and technological developments affect comparative advantages of producers.


Describes and discusses problems of the Connecticut retail florist industry.


Compares trends in floral industry for specific States. Wholesale value of cut flowers increased 3 percent between 1959 and 1962. Florida and California accounted for 26 percent of the increase.

A structural analysis of retail florist outlets in the Northeastern United States. The industry is characterized by small-volume, family-owned, independent businesses.


Information on varieties, prices, merchandising, selling, and terminology.


Study describes the extent of use of shrubbery and flowering plants by motel owners, and their attitudes on the use of plantings as an asset to business.


A comparative rating of flowers as gifts for special occasions by 1,152 consumers.


Reports consumer buying practices; also briefly reviews literature on flower merchandising, and stresses need for a consumer education program.


Basic information, skills, and standards needed for entry into the floral business.


Points out some advantages of advertising for the nursery industry.


Concerned with adopting sales promotional techniques and principles for marketing ornamental nursery products. Emphasizes that a successful promotion effort requires a carefully planned program.


Describes the structure of the ornamental nursery industry in South Carolina.


Describes the seasonal behavior of carnation prices and receipts in the New York City market, 1950-1954.


Gives specifications with pictures and guide lines for classifying Florida nursery plants.
A brief description of the flower supply in England and Wales.

Study of retail supply and demand for hothouse flowers in Great Britain.

Discusses elasticity of demand for flowers for various uses. Also discusses mass marketing of flowers for home use.

Describes the economic status of the floral industry in 1946.

Floral marketing research is made easy because most of the flowers marketed in metropolitan areas are produced nearby.

The trend of wholesale trade in floricultural products from 1940 to 1952 was toward larger volume.

Author points out how marketing methods for other products have changed, and warns florists that they should be making some changes in marketing methods too.

The wholesale value of floricultural sales increased from 200 million in 1949 to 300 million in 1959, with prices remaining relatively steady.

Comparison of rose prices with cost of living index and other economic indicators, 1921-45.

Part I. A statistical description of the floral industry after the twenties compared with that of the forties. Points out changes in marketing and distribution channels.
Part II. A further look at the past in an effort to avoid repeating mistakes of the thirties.

Gives many floral marketing statistics that the industry apparently was not aware of.
Points out uses of industry statistics in planning sales activities. Emphasizes that successful merchandising depends in part on knowledge of buying habits, cost, waste or loss, efficiencies, population movements and trends, and many other economic factors.

Reports that the relationship between disposable income and flower prices continues to be uniform in depression as well as in periods of prosperity.

Statistical description of the floral industry after World War II.


Suggests an improved scheme for classifying activities of nursery businesses. Descriptive research on costs, marketing, transportation, production, consumption, etc.

Article indicates that many small producers of floral products are relatively inefficient in that most of them do not use existing scientific knowledge in such areas as work simplification and mechanization.

Abstracts of papers.


Abstracts of papers.

Presents sales data by states with wholesale and retail breakdown for 1949. This material is also presented in the following articles by the same author: California, New York, Illinois Vie for Top on National Florist-Nursery Sales Chart. Florists' Exch. and Hort. Trade World. 121(1): 10. July 4, 1953. 80 F666.

Report on status of floral industry research.

Popularized report in which the author suggests replacing nostalgic memories with progressive practices in all phases of the floral industry.

Article points out the similarity between data provided by the Federal Government and by nongovernmental agencies. Also points out that improper classification of statistical data is a major handicap to its use.
This material also appears in the following articles by the same author:

Analysis of horticultural sales in 10 U.S. market areas, 1949.

Discusses terminology, origin, development, and current state of the horticultural industry.

Stresses the following: (1) Marketing research for horticultural specialties is new. (2) Research by the biological scientist is much ahead of marketing. (3) Cooperation and coordination of the marketing and research branches of the industry are necessary if orderly progress is to be made.

Summary of U.S. Department of Agriculture data on horticultural sales in selected markets.

Discusses business opportunities; also indicates that starting a business requires large amounts of time and money, plus very favorable circumstances.
Discusses the importance of floriculture and ornamental horticultural products as nonfood U.S. crops.
This material also appears in the following articles by the same author:

Summary of basic descriptive statistics contained in census reports relating to the U.S. floral industry in 1949.
This material also appears in the following articles by the same author:

Statistical report on current status of the floral industry, 1950.

Preliminary report of survey made by special crops section of Agricultural Marketing Service, U.S. Department of Agriculture. Covers sales by commodity, sales outlets, and types of transportation used by wholesalers.

Many of the economic problems of the horticultural specialty industry are similar to those of other agricultural industries. Most problems can be solved with a combined effort of State, regional, and National Government groups and industrial groups.


Discusses 1940-52 trends in the wholesaling of ornamental horticultural specialties.

Analysis of wholesale flower sales 1940-52.

Discussion of implications of establishing the Market Research Division, Agricultural Marketing Service, U.S. Department of Agriculture. Emphasizes that benefits derived depend upon requests made by users.

Statistical summary. Growers classified by size of business and crop specialty.

Statistical summary. Growers classified by size of business and crop specialty.

Economic analysis and appraisal of the potential for the pot plant industry.


Analysis of the sales trend of floral products by product categories.

Analysis of sales in 10 leading market areas representing over 25 percent of the U.S. population and over 30 percent of the retail trade in horticultural products.

Points out the need for good operating cost data. Such data were not currently available to the retail florist.

Outlines requirements for grades and standards for Florida's nursery products.

Results of a study of sales of inexpensive flowers in supermarkets indicate that there is a potential market in such outlets.

Reports test results of insulating properties of four materials used for lining and wrapping flower boxes. Ten sheets of newspaper were found to be the best insulator among the materials tested.
Gives latest information obtained from research and experience on how, when, and where to ship nursery stock.

Persions in homes, industries, commercial firms, schools, churches, government agencies, and hospitals were interviewed in the Knoxville and Nashville areas to determine their preferences among horticultural specialties, and to check on kinds and amounts purchased, and places where purchases were made.

Of 92 industries studied in the Knoxville area, 65 percent reported that they had not landscaped their properties, and 69 percent of those who had did not plan to do more.

This survey of recent purchases of woody ornamentals for home landscaping covered 465 Knoxville metropolitan area homes.

Survey in Memphis to determine consumer attitudes concerning flowers as gift items, and how flowers compare with selected items as gifts for specific people and purposes.

Survey covering consumer's concept of flowers. Includes items such as price, kind, reason for selection, keeping quality, decorative uses, arrangements, care, and gifts of cut flowers and potted plants.

Explains changes that have occurred in recent years and gives prospects for the future.

Summary of research on the status and major economic problems of the Rhode Island Nursery Industry.

Attitudes and reactions of industry, teachers, students, and parents to the use of flowers. Suggests consumer education through public schools as a means of creating a market for seasonal surpluses.
   Discusses advantages of utilizing factorial experimental designs for retail store experiments.


   Results of controlled store experiments designed to test sales effectiveness of special displays for cut flowers in supermarkets. Experiments include testing sales effectiveness of display racks and consumer packaging.

   Appraises proposed uniform grades for chrysanthemums, pompons, and carnations.

   Discusses proposed grades and standards for two varieties of cut flowers--chrysanthemums and carnations.

   Report based on the preliminary 1959 special census of horticultural specialties, giving current status, recent changes, and forecasts for the floral industry in New York State.

   Report based on 1959 census of horticultural specialties giving current status, recent changes, and forecast of future adjustments for the floral industry in N. Y. State.

   Report on New York wholesale operations including location, number of firms, items grown, sales volume, and marketing practices.

   Report based on 1959 Horticultural Specialties Census. Points out current status, recent changes and forecasts, and possible future changes.

   An analysis of the market structure in the New York retail florist industry.

   Summarizes general business characteristics, supply sources, and market outlets. Also gives statistical summary of volume and value of cut flowers and potted plants.

A study to determine (1) to what extent a wholesale flower market will develop significant price differences between North Central grades on the New York City Market for cut carnations and standard chrysanthemums, and (2) the added grower cost involved in instituting a uniform grading system. The market developed greater price differences between low grades than between high grades. The price differences between the lowest two grades was twice that of the highest two grades. Immediate labor costs increased 60 percent when grading was first instituted, but after several months returned to the pregrading level.


Report on New York wholesale operations including location, number of firms, items grown, sales volume, and marketing practices.


Summarizes acreage and commercial production of leading countries and gives their relative ranking.


A comparison in eight large nurseries during 1958 of sales of container grown stock and ball and burlap stock. Purchasers bought about equal amounts of each.


Reviews economic indicators of floral industry in 1953, and appraises outlook for 1954.


Appraisal of short run effect of cash and carry specials and other promotional techniques on flower sales.


Appraisal of market potential and sales effectives. Roses, carnations, and pompons were used to test packaging materials, pricing policies, and cost elements.


Study of consumer response to color, grade, number, and prices of carnations, pompon chrysanthemums, standard chrysanthemums, gladiolus, and roses, 1957-63.
Trustworthy production cost figures (both fixed and variable items) listed as guidelines for nursery business.

Report of a survey covering production, labor, markets, transportation, sales value, and problems of the industry.

Description of characteristics of the industry, including trends of production and sales, factors affecting concentration of production, production requirements, specialization, marketing techniques, capital and credit use and needs, bank lending opportunities, and prospects for growth.

A report on studies that were conducted to determine effect of transit temperature on shelf life of California grown flowers shipped by rail, air, or truck to Eastern and Southern markets.

Report of test results in use of improved packaging ("bunker box") for air shipments. Flower quality, including opening of blooms, stock decay, and wilting, was affected by transit time and temperature.

Discusses speculation accompanying the introduction of plants, bulbs, tulips, pink daffodils, mulberries, boxwoods, and so forth during earlier times, and the impact of the plant patent act.

Report on New York metropolitan area marketing costs, including labor, transportation, supplies, overhead, and grading.

Study of handling practices and marketing cost of New York State chrysanthemum growers.

Lists procedures that extend cut flower storage and shelf life, such as refrigeration, humidity, water, and preservative solutions.
Tests of the effects of constant temperature, water emulsifiers, water salinity, and deionized water on keeping quality of cut carnations.

Summary of a preliminary survey of retail florists to determine kinds and quantities of products handled, pricing methods, extent of advertising, and merchandising techniques used.

A new moist-pack box was compared with conventional packs in test shipments. The moist pack was found to be superior to conventional packs.

Statistical summary showing production, sales, employment, operating, and other major expense data.

Broad general description of existing business management practices. Also lists special problems suitable for future research.

Christmas season data for 1956 showed shifting consumer preferences in favor of locally grown trees, although Canadian imports offered real competition.

Traces in detail the historical basis of the Massachusetts nursery business.

Describes the operations of the flower auctions in the Netherlands.

Report on production areas, markets, transportation, packaging, grading, and storage of New England roses.

Describes the carnation marketing systems in Connecticut, Maine, and Massachusetts. Includes market outlets, fee arrangements, consignment selling, direct and wholesale sales, transportation, packaging, grading, and refrigeration.

Report based on the 1959 special census of horticultural specialties, as compared with census data obtained a decade earlier.
Summarizes the results of experiments that were run over a period of years to determine how to maximize the keeping qualities of anthurium flowers.

Sales of potted plants and cut flowers were measured over a 3-year period in a supermarket, a variety store, and a retail florist shop. Results show dollar sales of floral products per square foot, compared with average sales per square foot for all items handled.

A report on consumer acceptance tests of cut flowers and potted plants in selected retail outlets. Recommends procedures to be used in applying these findings.

Analysis of U.S. and California data shows a need for more "impulse" flower buying.

Results of potted plant and cut flower sales tests in four Columbus, Ohio, supermarkets (1955-60) are reported. Also, guides for this type of merchandising are offered.

A report on the results of a survey on motivation appeals, obstacles to increased purchases, and related information on landscaping and marketing of nursery products.


Reports some preliminary results of attempts to measure the effects of advertising on sales of flowers by florists. Findings should not be considered conclusive since the effect of advertising on sales is difficult to measure.

Describes the structure of prices at the wholesale level, and methods used in reporting wholesale prices to various members of the industry.

Statistics of production, marketing, and shipments of floral products from the Island 1949-52.

Annual summary of receipts and price ranges for 15 major cut flower crops as reported in the daily wholesale cut flower market news reports.


Report on tested selling methods.


The success of supermarkets in selling flowers shows a way for florists to increase sales by adopting mass marketing methods.


Author concludes that no set percentage markup can be made—suggests the only safe way is to know operating expense and to price accordingly.


Stresses that the more the public knows about roses, or any flowers and their care, the more it will use them. Suggests demonstrations on television as being a good way to inform the public.


Study shows that increased demand is necessary for "casual use" flowers before profitable selling is possible at low prices.


Study compares the relative preference for cut flowers and potted plants by members of the County Home Demonstration Council of Mississippi. Blooming pot plants were preferred over cut flowers.


Report covering production, harvesting, marketing, and consumer suggestions.


Summarizes sales of cut flowers and nursery products for 1961 and compares with the 1959 census data. Also gives grower intentions for 1962 plantings and appraises outlook for horticultural specialties.


A report on a 1-year study of the problems and solutions of selling floricultural products in a Middlesex County supermarket.


Description of the nursery industry located within 50-mile radius of Tyler, Texas.
A listing of authors and titles from 1930 through August 1956. Reports on production are also cited.

A survey of mail-order merchandising by nurserymen to determine whether any one method of packaging and shipping evergreens is superior to another. No one “best” procedure was found.

Issued annually. Gives receipts and price ranges for major cut flowers as reported in daily wholesale cut flower market news reports.

Offers useful suggestions for growers, wholesalers, retailers, and customers on proper care of cut flowers.

Flower life and quality can be improved by proper handling, low temperature, and use of preservatives.

Annual publication. (See 199, Marcus for description of contents.)


High quality and consistent grades are the most important factors to be considered in the northern retailer’s pricing practices.

Author compares carnation and rose prices in New York and Denmark. Concludes that United States has a virtually untapped “flower-for-the-home” market.

Describes marketing practices and problems of nursery retailers in New York State.

Gives results of a sales test in Rochester, N. Y. on the use of the aqua-pak in four supermarkets during January and February 1958. Results indicated a good market for the aqua-pak.
Covers current status of floriculture in the Northeast and the nature and extent of changes taking place in the production and marketing of floricultural products in the 12 Northeastern States.

Gives a brief description of the floral marketing research being carried out at Cornell University.

A selected bibliography for retail florists and growers of Michigan.

Findings showed California flower sales increased 58.2 percent between 1950 and 1958; however, all taxable retail sales increased 60.8 percent in the same period.

Authors conclude that lower air freight rates alone will not provide an answer to the competitive problem in out-of-State markets for California grown floral products.

Lower air transportation rates do not appear to be the way to increase demand for California flower growers' products. The authors suggest the industry should examine other cost items to discover the most efficient marketing method.

Findings revealed that different packaging materials give varying effects on floral products such as potted and cut chrysanthemums, cut roses, and carnations.

Results of a telephone survey to determine consumer's purchasing habits for Christmas trees and greenery. The results were compared with a similar study conducted a year earlier in Columbus, Ohio.

A survey of wholesalers in three Ohio cities revealed a complex operation. Findings also showed that successful growers planned Christmas tree marketing carefully as to timing and alternative outlets.

A survey of retail Christmas tree dealers in major cities in the North Central Region. Provides information on species and quality preferred, prices, source of supply, marketing duration, and other characteristics.


1940 retailers operating cost survey--florists and nurseries--analysis of 1939 operations.


Major emphasis is placed on proposed grading rules for Douglas fir Christmas trees.

220. M oo re, E. J. Wholesaling Floral Commodities in the Chicago and New York City Markets. U.S. Agr. Mktg. Res. Rpt. 175, 32 pp., illus. June 1957. 1Ag 84Mr.

Description of commission and merchant wholesalers' functions. Discusses procurement, marketing methods, and supply channels for cut flowers.


States that two changes are occurring in the gladiolus sector of the floral industry--(1) Production is shifting from the East and Midwest to Florida, Texas, and California, and (2) the average size of operations is increasing.


Stresses marketing of floral commodities in food chains and variety stores.


Descriptive report--market structure, transportation, market allocation, marketing costs and services, selling methods, and suggested improvements.


Appraises current and potential importance of floriculture in the agricultural economy of Florida. Floriculture ranks third, behind citrus and truck crops in gross receipts from marketing. Thermal advantages of specific areas have contributed to growth of the industry and will influence future growth.


Market news service report giving prices, and supply and demand situation.


Descriptive summary of foliage industry including value of sales, production areas, selling practices, market outlets and distribution patterns, employment, and problems of the industry.
A survey of New York nurserymen to determine factors contributing to profits.

Annual summary of receipts and price ranges for 15 major cut flower crops as reported in the daily wholesale cut flower market report.

Discusses relationship of landscaping expenditures to value of homes. Findings indicated a positive relation between landscaping expenditures and purchase price of house.

Stresses importance of marketing to industry. It urges nurserymen to consider the changing consumer demands, and to adjust operations accordingly.

Evaluates the influence of the following factors on household expenditure for nursery products: (1) Family income, (2) value of house, (3) age of house, (4) number of woody ornamentals when house was purchased, and (5) community or neighborhood.

A case study designed to determine in detail the cost associated with wholesaling woody ornamentals, and to develop a framework for an acceptable pricing policy.

The objective of the study was two-fold: To describe the image that the garden center portrays to customers, and to determine buying habits of garden store customers.

California survey of merchandising trends and practices in nonnursery outlets. Factors influencing nursery purchases included quality and plant appearance, clerk's recommendation, and price.

Reports on a six-State 1963 study of wholesale cut flower and nursery stock sales by the U.S. Crop Reporting Board. Sales during 1963 increased about 18 percent over 1962.
Summarizes findings of a 44-State newspaper survey to determine the prevalence of "Please omit flowers" in obituary notices.

Reviews consumers’ preferences for colorful, low cost, dual-purpose plants. Lists characteristics of best sellers.

Description of Florida’s foliage plant production. The world’s leading growers are from Florida.

Reports results of a two-city sales test to determine the influence of colored containers on azalea sales. Findings showed the color of container made no difference in plant sales.

Descriptive report giving various factors affecting the industry—climate, production, labor, plant classification, and transportation.

Report covers the effect of location on nursery marketing and services under West Virginia conditions.

Descriptive report of marketing practices of full-time nurseries with discussion of some of their major marketing problems.

Comparisons of evergreen shrubs with deep and shallow root systems and narrow and broad leaves. Estimates number of years required for 1 acre foot of soil loss if plants are balled and burlapped for marketing. Also gives labor requirements for balled and burlapped pack under varying weather and soil conditions.

Describes the ornamental industry in West Virginia. Opportunities and considerations for success of part-time nurseries are discussed.

Agricultural experiment stations of Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, and West Virginia participated in this study
in cooperation with the U.S. Department of Agriculture. A survey was conducted of homeowners with homes valued in excess of $10,000 located in these seven North-eastern States to determine type, number, and dollar value of plants purchased for landscaping; channels through which purchases were made; seasonal characteristics of purchasing; and other economic and demographic information affecting purchases of nursery products.


A report analyzing the promotional activities and sales of florists indicates that continuous sales promotional innovations are necessary to sustain a high demand over the years.


Reviews the status of the Hawaiian floral marketing system and the reaction to it on the Pacific Coast. Suggestions are offered for improvements at the shipping, wholesaling, retailing, and consumer levels.


Traces the patterns of floral shipments from the producers in Hawaii to the mainland consumers. Includes topics such as operating method, supply sources, pricing, obstacles and problems, delivery time, consumer attitude, and improvements for market development.


Describes movement of Hawaiian floral supplies in 14 U.S. mainland markets. Suggested improvements cover many aspects of the marketing system.


Survey of Hawaiian flower shippers; mainland dealers located in Oregon, California, Illinois, and New York; and advertising agencies servicing floral accounts to determine the potential of direct mail selling of Hawaiian floral products. The study covers quality and other commodity factors, and methods employed in direct sales including mailing list advertising and sales promotion, market development, and operating cost. The effect of such factors as seasonality and holiday selling is also discussed.


A report on results of a test conducted over 57 weekends in 6 retail florist shops offering specials from $0.35 to $2.50. The promotions included newspapers, radio, direct mail, and open house. Findings showed that sales and profits increased in test shops over the control group.

Discusses large volume selling and its effect on prices and profits. Suggests that cash and carry specials offer the best way to merchandise flowers for use in the home.


Improved advertising and promotion practices offer a practical answer to competition.


Results of a floral promotional test program in Pennsylvania and West Virginia using expanded advertising, merchandising, and public relation techniques to increase retail sales. Interviewees were used to check consumer reaction during the test program. Economic effect on Pennsylvania florist shops is appraised.


Discusses methods of inventory control; states that no one method can meet the need for all nurseries. Suggests that each nurseryman adopt or devise a method that fits his needs. Emphasizes that a good method of inventory control is one of the most essential tools of good management.


Notes new developments in the industry including changes and trends in retail outlets, packaging, plant varieties, and landscaping.


Description of the operating practices of retail florists in South Carolina.


Proposes standards using weight for grades. Author states that weight is a good index of stem diameter and length and size of flowers.


Gives pointers on producing and marketing of annual flowers.


How a flower growers' marketing cooperative in Portland, Oreg. was formed in the early 1940's and how it now operates.


Author points out that florists, including bedding plant merchandisers, have stood by and let business slip away. Fortunately the industry is waking up and doing more advertising and promotion to increase sales.
Cites some good experiences of several Portland, Oreg. florists who used weekend specials to increase store traffic and total sales.

How a cooperative operates in marketing flowers in Spokane, Wash., and Portland, Oreg.

Describes various outdoor uses for begonias. States that begonias are colorful and well suited to use as bedding plants, for hanging in baskets, as patio plants, and as outdoor plants for shopping centers.

A study of the credit and financing problems of retail and wholesale florists in four Iowa cities.

Gives information on species, quality, grades, prices, production, and marketing.


Export demands, characteristics of the market, availability, prices, how flowers are used, sales potential, and transportation.

Describes and evaluates marketing practices, services, costs, margins, and prices for 10 southern California counties with recommended changes to increase floral sales.


Analysis of marketing practices of full-time as well as part-time nurserymen located in Pennsylvania, New Jersey, and Delaware. A significant finding was that many firms do not have adequate records for profitable business management decisions.

Summarizes a study done by Opinion Research Corp., Princeton, N. J., sponsored by Rose, Inc. The study was primarily concerned with the consumer image of roses and other flowers.
A description of the history and growth of the Pennsylvania Nurseryman's Association. In 1904, nurserymen in Pennsylvania organized to form a State nurseryman's association with 169 members who planted 2,719 acres; by 1957 the number of members had grown to 671 who planted 14,426 acres to nursery stock.

Evaluates the present marketing system of Puerto Rico and appraises the major marketing problems.

Discussion of technical problems involved in controlled atmospheric storage of flowers. Article states that the main problem in attempting to add shelf life to flowers through controlled atmospheric storage revolves around ability to control levels of carbon dioxide in the package.

Reviews factors affecting shelf life of flowers. For example, keeping quality of flowers can be affected by the amount of sunlight just prior to harvesting, by pollination in some varieties, and by a host of other factors.

Part I. Describes methods of conditioning flowers prior to sale to extend life of blossoms. Recommended methods include "method packing" for low temperature and "dry pack" for storage.
Part II. Suggests control methods to minimize damage from the ethylene gas that is given off by all plants. This gas speeds up the maturing process.
Part III. Discusses use of commercial preservatives for increasing cut-flower vase life. Author suggests that doubling the useful life of flowers will improve consumer acceptance.
Part IV. Describes the effect of water loss on cut flowers and offers possible delaying procedures.
Part V. Suggests trade practices that will prolong life of flowers. Also stresses that all industry segments must work together to improve keeping qualities of flowers.

Part I. A brief economic summary on the status of the industry. Emphasizes need for floral marketing research. Summarizes experience of cash and carry merchandising by a few retail florists. Recommends cash and carry sales as one means of increasing sales volume and profits.
Part II. Describes three different types of cash and carry operations: (1) Regular week-end specials, (2) cash and carry prices on all merchandise, and (3) a separate cash and carry shop. Discusses pricing policies, advertising, and personal salesmanship in shop.
Part III. Discusses the sales potential of flowers sold through mass outlets.

Part IV. Appraises impact of increased sales from mass marketing concepts, cash and carry operations of retail florists, and mass marketing outlets on growers' production practices and returns.


Cites merchandising, distribution, and production changes, and ways to take advantage of the opportunities arising from these changes.


Describes various methods used to lengthen cut flower life.


The market news service which reports daily Florida cut flower shipments has developed a good communications system for rapid collection and dissemination of data.


Suggests that flowers could be sold for use in industrial offices; working rooms; bus, train, and air terminals; and taxicabs.


Describes the auction system of marketing flowers used in Western Europe. The author highly recommends this system for American flower growers.


Description of size, marketing practices, and problems of nurseries in Tennessee.


Statistical summary of the flower industry in Florida and comparisons with other states. In 1958 the Florida flower crop amounted to $13.4 million. This was second to California's crop which was $15 million.


Statistical presentation of the Florida floriculture industry. Also covers production practices, insects and diseases, and varieties grown.


A report on results of sales tests in mass market outlets over a 5-year period.


A report on the results of sales tests in mass market outlets over a 5-year period. Dollar sales per square foot of display area were about the same as for other supermarket items.
Tabulations of consumer panel tests. Gives reasons for purchase, color preference, and frequency of purchases by income groups for cut flowers and potted plants.

A report on the findings of a telephone survey to determine kinds of flowers purchased, frequency of purchase, and income groups of the purchasers. Also, results of a consumer preference test on sweetheart roses and chrysanthemums is reported.

Reports results of 3 years' experimentation to determine feasibility of selling cut flowers and potted plants in mass market outlets. Sales per square foot of floor space for flowers was about the same as for all other supermarket items.

A report on the various operating expenses of the retail florist.


Summarizes past and present marketing research on flowers and ornamentals, as well as planned research by southern colleges and experiment stations.

Discusses the problems of expanding the market for cut flowers through existing mass outlets. Concludes that florists' youth education program offers the best long-term solution for expanding the market.

Summarizes growth and development of industry from 1949-59. Increases of more than 85 percent in total sales were registered during the period.

Based on a pilot study, describes the marketing practices for ornamental nursery products in Pinellas County, Fla.
Results of a pilot study on sales volume, stock inventory, and marketing practices of the nursery industry in Pinellas County, Fla.

A description of the marketing channels and pricing policies of Florida nurserymen.

A marketing report on 1952-53 gladiolus crop. Reviews the industry’s growth, changes in marketing practices, price trends, and grading.

A report covering Florida's fern growing industry. Discusses sales value and volume, marketing practices, and other economic factors.

Production areas, sales distribution, transportation, marketing, and outlook for Florida's foliage plant industry.

Describes a floral display cart adaptable to supermarket flower sales. Cart allows flowers to be displayed with their stems in water and is easily rolled into a refrigerated room at night.

A report on Florida foliage plant sales. Sales increased from $3 million in 1950 to over $10 million in 1956.

This is one of the earlier studies on flower marketing in mass outlets. Sales per square foot of floor space were a little above those of all other items in the stores.

Encompasses sales, market characteristics, consumer preferences, advertising and promotion, physiological characteristics, and outlook for cut flowers and foliage plants and for artificial flowers. Previous studies are also considered.

A description of the grade standards set for standard mums proposed by Gaylord and Hoxie.

- 32 -

A report on the proper handling methods for flowers during the marketing processes. Also, the need for flower marketing research in the United Kingdom is stressed.


Information guide and membership listing of the Society of American Florists.


Description and analysis of trends of the Texas nursery industry. The sale of nursery products in Texas increased tenfold between 1920 and 1959. The number of acres planted dropped from 10,194 in 1954 to 8,815 in 1959, while dollar sales increased from $7.2 to $8.0 million.


A report on findings of a consumer survey covering sources of information consumers utilize concerning ornamental plants, use and care of plants, availability of landscaping services, and other factors.


Describes the activities of the Texas wholesale florists industry as well as its market structure.


Describes the economic status and the methods of marketing and distribution of the rose industry of Texas.


A summary of consumer panel members' preferences in plants and flowers for the home.


A study to determine the market potential for Texas-grown Christmas trees. The findings indicate that the quality of Texas trees could be improved, and that Texas growers could furnish as much as one-half the State requirements.


An economic analysis of marketing channels for Texas Nursery Crops to determine the extent of vertical integration in the Texas nursery industry. The study revealed that 24 percent of Texas nurseries were vertically integrated.

- 33 -
A study to determine the extent of vertical integration in the Texas floral industry revealed that about one-third of the operators have licenses for more than one type of operation.

A study of 22 wholesale nursery producers to determine the monetary importance of crops, methods of distribution, and production and marketing costs. The findings revealed that one-half of the nurseries were individually owned and had investments exceeding $100,000 per nursery. However, their records were not adequate for a proper analysis of their operations.

A report on results of a pilot test conducted to determine the varieties of potted plants that would sell in mass markets. From the test results, a production schedule for small potted plants was recommended.

A 3-month pilot test in two florists’ shops indicates that small potted plants can successfully be sold at retail flower shops.

A statistical summary of sales of four varieties of cut flowers in six leading States. In 1962 sales were up 6 percent over 1961.

Presents the wholesalers’ and the growers’ points of view on grading flowers.


Discusses the good and bad points of inventory control. Concludes that good inventory control can eliminate the merchandise that does not move.

An appraisal of the marketing practices of growers, wholesalers, and retailers selling in the Washington, D.C. area.

A discussion of the proposed redevelopment of the Boston floral market with details on financing, layout, site, ownership, management, revenue sources, construction costs, and benefits.

Summarizes research findings which show that ripening fruit gases have beneficial uses as well as harmful effects (such as wilting of flowers).

Report on a study conducted to gather some basic information on advertising and other promotional practices of retail florists. The promotional methods that are employed by florists are described, and percentage of florists using each method is given.

Analysis of seasonal price variations and of the influence of holidays on the prices of roses, carnations, gladiolus, and pompons.

332. THOMPSON, GEORGE, JR. Wholesale Flower Prices, 1940-50. 193 pp., illus. PhD. Diss. Cornell Univ. 1951. (Typewritten.)

An appraisal of the potential for expanding the market for flowers. Three developments led the author to believe that the potential for market expansion was good: (1) Growth in air freight, (2) prepackaging, and (3) mass marketing through supermarkets.


The following topics were discussed: (1) Cost-price squeeze; (2) chain stores in floral retailing; (3) increased efficiency of retail stores; (4) increased specialization, especially in production; (5) development of growers cooperatives; (6) establishment of "orderly marketing" procedures; (7) effects of wider consumer experience with floral products; and (8) effects of marketing technology.

An appraisal of the factors affecting purchasing practices of retail florists. The findings indicated that purchasing practices of retail florists depend upon distance from wholesaler, adequacy and convenience of transportation, and management policy and economic constraints.

- 35 -

Describes the demand patterns for various classes of merchandise as reported by Michigan florists in 1956.


Describes the seasonal sales patterns of eight merchandise classes as reported by Michigan florists in 1956.


The purpose of this research was to explore the nature of retail florists' pricing methods as well as to document the attitudes on pricing practices.


An appraisal of the industry's situation and future prospects.

341. TROTTER, C. E. Why Some People Buy Flowers and Others Do Not. Florists' Rev. Apr. 9, 1959, pp. 51, 52, 150, 152. 80 W41.

Describes the "image" various groups hold of flowers. Also discusses promotion of flowers.


A report on a floral promotion study in Pennsylvania. The results indicate that promotion does increase sales.


Report on a research project in Pennsylvania where floral promotion paid off. The florists received a $2.00 return in increased sales for every $1.00 spent for promotion.


A comprehensive study of all phases of flower marketing.


Gives demand and seasonal variations as well as the influence of holidays on prices and volume for the 1940-50 period.


Offers the following recommendations for a successful operation: Build a good reputation with your wholesaler, know your market, use grades, ship top quality blooms regularly, and practice fair packaging.

Topics discussed in this report are market development, operating efficiency, market information, grades and standards, and crop estimates.


A special census on U.S. production and wholesale marketing of horticultural specialty crops.


Contains annual statistical summaries of production and sales of carnations, chrysanthemums, gladiolus, and roses. Also reports growers' production intentions for the next year in selected States.


Contains annual statistical summaries of production and sales of nursery products. Also reports growers' production intentions for the next year in selected States.


Discusses the means of maintaining quality during various stages of marketing. Emphasizes that a top grade flower can be very easily ruined while being transported if consideration is not given to the fact that an orchid is very delicate and will bruise and tear easily if improperly handled.


Offers some detailed suggestions on how retail florists can improve their business. The suggestions include a constant analysis of operations and appraisal of other segments of the industry, the maintenance of adequate records, improvement of public relations, furnishing of educational materials to consumers, improvement of appearance of facilities, and testing of new ideas.


Report designed to provide guidelines for a florist to follow in analyzing his individual operation and make comparisons with other businesses of similar size.


A nationwide study on the financial structure and management practices of retail florists. Based on interviews with 130 randomly selected retail florists.
A summary of the reactions of consumers who purchased flowers at a special sale price.

Summarizes the results of controlled experiments conducted to test the sales effect of selected merchandising and promotion practices in retail flower shops.

A report on the results of a controlled experiment conducted in Grand Rapids, Mich. utilizing the Latin square experimental design. The findings indicated that special sales of cut flowers and plants can help all segments of the industry.

Analyzes the possible reasons for the foliage business recession and gives suggestions to prevent further depressed conditions.

A historical treatise tracing the Florida horticultural industry.

A cost analysis of 12 Pennsylvania greenhouse rose growers. Expenses and net sales are compared.

Author stresses that a strong consumer demand calls for a renewed effort to market potted plants. Offers merchandising tips for growers and retailers.

An optimistic appraisal of the short-term outlook for the nursery business. Also suggests that the long-range economic outlook offers nurserymen a good future if they take advantage of the opportunities that are offered.

363. WIDMER, R. E. Minnesota Bedding Plant Production--A Growing Busi-
Describes low cost hotbed construction as well as retail selling techniques.

A book reviewing 50 years of history of the Association from a faltering beginning to the present.


- 38 -
A small brochure explaining how to care for flowers to make them last longer. The brochure recommends (1) using clean containers, (2) cutting at least 1 inch off stem, (3) removing lower leaves, placing stem in 100° water, and setting in cool place, (4) arranging in appropriate containers, (5) recutting stems every other day, and (6) keeping flowers away from heat.

A brief summary of average storage requirements for fruits, vegetables, and cut flowers that are marketed commercially.

An appraisal of the potential for selling cut flowers for home use in supermarkets. Flowers were test marketed in mass outlets each spring 1956 through 1959. The authors concluded that selling flowers in supermarkets offered a possibility for expanding sales.

LISTING BY SUBJECT MATTER

The numbers under each heading refer to articles or research studies listed in this bibliography. An article or research study may be listed under more than one heading.

I. Advertising and promotion

| 14 | 69 | 166 | 246 | 262 | 330 | 355 |
| 25 | 71 | 183 | 252 | 263 | 343 | 356 |
| 30 | 72 | 190 | 254 | 279 | 342 | 357 |
| 35 | 138 | 233 | 255 | 280 | 341 | 361 |
| 40 | 153 | 234 | 253 | 307 | 344 |

II. Consumer preferences

| 8 | 69 | 128 | 170 | 195 | 239 | 291 |
| 38 | 131 | 135 | 177 | 196 | 245 | 307 |
| 49 | 132 | 137 | 179 | 218 | 255 | 315 |
| 67 | 130 | 151 | 181 | 235 | 273 | 341 |
| 68 | 129 | 155 | 190 | 240 | 290 | 344 |

III. Cost of production

| 1 | 156 |
| 2 | 162 |
| 92 | 243 |
| 93 | 344 |
| 147 | 363 |
IV. Cost of marketing

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V. Demand and supply factors

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VI. Description of channels of distribution

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VII. Grades and standards

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VIII. Mass marketing

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IX. Pricing practices--wholesale and retail

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X. Quality maintenance in marketing channels and at home

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XI. Shipping and holding containers

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XII. Market information and statistics of production and marketing—National, Regional, and State

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XIII. Market development (other than advertising and promotion)

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XIV. Trade practices

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XV. Transportation

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XVI. Miscellaneous

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