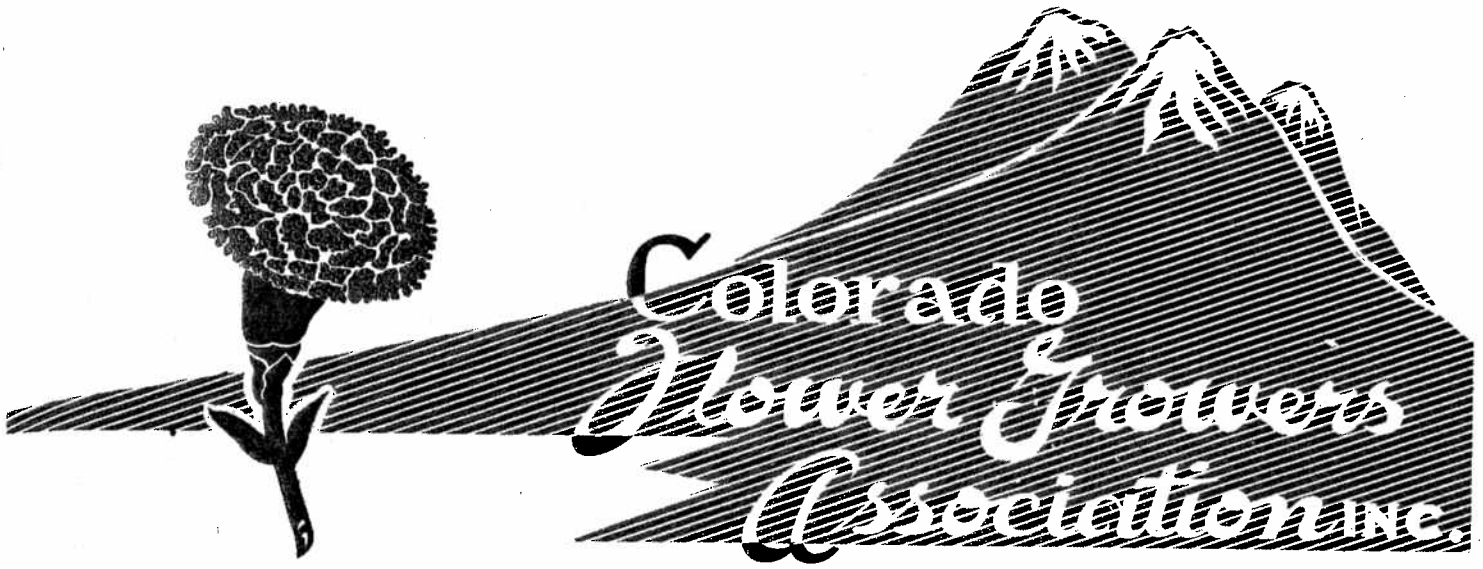

IN COOPERATION WITH COLORADO STATE UNIVERSITY
Dorothy Conroy, Executive Secretary
901 Sherman St., Denver, Colorado 80203

Bulletin 196

August 1966

An Economic Analysis of the U.S. Carnation Industry-Part I Growers[1]

S.T. Besemer and W.D. Holley

Limited economic information is available concerning the production and marketing of carnations in the United States. Since carnation production has expanded so rapidly in recent years, there are many questions about the immediate future.

Rapid expansion and dynamic changes in competitive production and marketing create problems of decision making by all segments of the industry. Carnations have moved into second place in value among all cut flowers. Shifts of production to more suitable climatic areas, marked advances in transportation, cultural technology, and aggressive merchandising are some of the key factors related to the rapid expansion of carnations.

Growers in older production areas are concerned about how much longer they can compete with higher yields, higher quality, and cheaper prices from the newer areas. Growers in all areas are faced with problems of increasing land values, taxes, production costs, and zoning restrictions. In many areas the labor supply is critically short, and facilities have become obsolete because of rapid changes in technology.

Growers must make decisions on whether to stabilize their operations, rebuild or expand at their present locations, relocate in the same general area or a completely different area, convert to another crop, or go out of business altogether.

Competition between older carnation producing areas is becoming more intense. The future of each area and the effects of each area on the other are not fully understood. Information is needed for growers, shippers, and wholesalers to assess the factors that may cause changes in each area. This knowledge could then be applied to many management decisions.

Procedure

Three types of mail questionnaires were used: one for producers, one for wholesalers, and one for shippers. A total of 830 questionnaires were sent: 381 to producers, 376 to wholesalers, and 73 to shippers.

To make comparisons of the economic factors of production, seven major carnation areas were designated. These were: Southern California, Northern California, Colorado, Pennsylvania-New York-New Jersey, Massachusetts, North Carolina-Virginia, and the Midwest (Minnesota, Iowa, Missouri, Wisconsin, Illinois, Michigan, Indiana, and Ohio).

[1]This is a very condensed version of the thesis written by S. T. Besemer in partial fulfillment for the M.S. Degree at Colorado State University. The complete thesis may be obtained on loan from CSU upon request.

The questionnaires were mailed on December 1, 1965, with a deadline for return of March 1, 1966. Data from the questionnaires were transferred to master sheets from which totals and averages were developed for summary tables to compare geographical areas. Response to questionnaires varied between segments of the industry and by geographical areas. In total, wholesalers responded with a 31 percent return; producers returned 26 percent; and shippers returned 22 percent. A few incomplete questionnaires were utilized where data for an item were complete. Therefore, different sections of the summaries are based on varying numbers of respondees. This approach was used to derive average figures based upon the greatest number of participants.

Plant density and flower yield

Massachusetts carnation growers reported the highest plant density, averaging 3.8 plants per square foot or about 108,000 plants per acre. Northern California reported the least dense spacing of 2.3 plants per square foot of bench or about 61,000 plants per acre. A plant spacing of 2.8 to 3.0 plants per square foot of bench appears to be the common range for most producing areas (Table 1).

Flower production is greatest in the three western producing areas. On an acre basis, California and Colorado are very nearly equal in productivity, each area approaching a million blooms per acre annually. Pennsylvania-New York-New Jersey and North Carolina-Virginia are similar with over 800,000 blooms per acre. The Midwest and Massachusetts reported lower average yield rates (Table 1).

Types of greenhouses

Based on the growers reporting in the survey, the prevalent types of greenhouses for each producing area were indicated as follows: Southern California, 83% polyethylene; Northern California, 71% polyethylene; Colorado, 88% glass; Penn-N.Y.-N.J., 99% glass; Massachusetts, 100% glass; North Carolina-Virginia, 74% glass; and the Midwest, 97% glass. Some rigid plastic was indicated for Colorado and North Carolina-Virginia.

Table 1. Number of growers reporting, acreage of those reporting, average plant density, and yield of blooms for the 7 carnation producing areas.

Production area	No. growers reporting	Acreage reported	Per sq. ft. bench space		Per acre	
			Plants	Blooms	Plants	Blooms
So. Calif.	11	16.1	2.8	35.5	73,830	929,411
No. Calif.	13	5.7	2.3	35.9	61,091	937,864
Colorado	21	12.4	2.8	33.4	78,212	945,612
Penn-N.Y.-N.J.	11	6.8	3.0	29.7	85,720	839,287
Mass.	4	2.7	3.8	24.1	107,669	683,053
No.Car.-Virg.	2	2.0	3.0	29.8	84,586	845,864
Midwest	5	3.7	2.6	25.2	75,000	714,285

Capital investments

Capital investments in land and greenhouses were variable between growers and areas. Land costs have generally doubled in most areas from 1955 to 1965. Present land costs for carnation production are about $10,000 per acre in California and usually less in other producing areas. A few long-established growers in urban areas reported land values, where their greenhouses were located, of $25,000 to $100,000.

New construction of glass greenhouses with metal frames costs about $4 per square foot of ground covered in areas such as Colorado, Penn-N.Y.-N.J., Massachusetts, and the Midwest. Growers from Northern California indicated greenhouse construction costs of about $2 per square foot. Costs in Southern California for a wooden frame polyethylene film greenhouse are about 25 to 30 cents per square foot.

Average capital investment per acre for equipment ranged from about $30,000 to $50,000 for areas, such as Colorado, Penn-N.Y.-N.J., Massachusetts, and the Midwest. Southern California carnation growers reported an average equipment investment of about $12,000 per acre and Northern California about $16,000. In California, if heating was not used the equipment investment was reduced by about one half the above amounts. In all areas, heating systems represented 1/3 to 1/2 of the total equipment investment. Grading sheds, other buildings, and other equipment such as vehicles, cooling pads, fans, and water systems were also major items.

Annual production costs

The annual production costs, consisting of 10 items each as a percentage of total costs is listed in Table 2.

Generally, the items follow a fairly consistent relationship as percentages for each of the areas. The combined labor and management cost is in the range of 55 to 60 percent of total costs for all areas except Massachusetts. Fuel costs are less in California, and range from 7.3 to 10.7 percent for the other areas. Utilities, taxes, interest, and insurance are shown to be modest costs compared to the major costs, such as labor, fuel, plants, supplies, and miscellaneous expenses.

Production area	Percent of total cost									
	Hired & family labor	Mgmt.	Fuel	Util. & Water	Plants	Taxes	Supplies	Interest	Insur-ance	Other
So. Calif.	53.4	8.8	3.0	3.1	5.3	4.2	12.1	1.7	2.5	6.2
No. Calif.	48.3	16.6	3.6	3.0	7.5	2.9	12.5	2.2	1.7	1.6
Colorado	44.3	15.2	8.1	4.2	3.4	5.1	9.3	3.0	2.2	5.2
Penn-N.Y.-N.J.	43.7	15.2	8.0	2.9	8.1	3.4	9.6	1.1	2.2	5.9
Mass.	33.7	10.2	10.7	3.1	8.8	4.7	4.5	2.2	2.0	20.2
No.Ca.-Virg.	33.4	23.4	7.3	3.1	6.7	3.8	6.1	3.3	2.1	10.7
Midwest	37.7	18.4	7.9	3.2	8.6	4.4	4.6	2.6	3.3	9.4

Table 2. Average annual production costs for 7 carnation producing areas.

Marketing methods

Of the growers reporting in the survey, there is considerable variation on how flowers are sold. About 2/3 of the California growers depend on shippers to market their carnations. About 1/2 of the growers ship their own flowers, and a small percent market locally. Colorado is distinctive from all other areas in that the majority of growers market through associations. In Massachusetts and North Carolina-Virginia, the majority of carnations are marketed by the growers. Massachusetts also relies on wholesale shippers and the local market.

Marketing costs

Considerable variation exists on estimated costs by growers to grade and bunch carnations. The majority of the estimates indicate the cost at around 20 cents per bunch of 25 blooms.

Some variation in selling commissions is apparent between areas, the range indicated being from 16 percent in Massachusetts to 22.5 percent in Southern California. The average costs to a grower selling his own flowers or marketing through an association were consistently lower than those where wholesalers or shippers perform this service.

Methods of financing production factors

Generally, growers in all carnation producing areas indicated bank financing is used for purchasing land, large equipment, new greenhouses, and grading sheds or refrigeration. Labor, supplies, plants, and other items are usually financed by working capital, such as cash.

Production (cultural) problems

Growers' opinions of the ranked importance of cultural problems vary considerably. However, an average of ranking of problems indicated a general trend of agreement for all areas. Except for Southern California, low light during part of the year was ranked first. All areas rated diseases and insects as foremost problems. Excessive greenhouse temperature was generally ranked as an important problem, also condensation in the greenhouse. Smog, nematodes, rodent and bird damage were rated as less critical problems.

Outside (non-cultural) problems affecting production

The ranking of other problems affecting greenhouse production of carnations indicated that growers in all areas are particularly conscious of rising costs. Labor costs and property taxes ranked highest. Labor quality and labor supply also consistently rated high in all areas.

Rising supply costs and building restrictions were rated as problems in some areas. No room for expansion, vandalism, and complaints by neighbors, were consistently rated as the least important problems.

Factors most likely to improve a carnation business

Efficiency of production, listed in the survey as "increased production per unit plus decreased production costs" rated as the leading factor most likely to improve carnation operations. "Higher flower prices" was rated a close second.

A "good advertising program" was rated third for improving business. "Larger sales at current prices," and "cheaper and better transporation" were relatively unimportant to growers in all areas.

General management and economic opinions

The majority of growers in California, Colorado, Midwest, and North Carolina-Virginia indicated they would be willing to relocate their greenhouses if necessary. Massachusetts and Pennsylvania-New York-New Jersey growers generally indicated unwillingness to move.

The majority of growers in California, Colorado, and North Carolina-Virginia believe that expansion of carnations could profitably continue in their areas. About equally divided opinion was indicated about possible local expansion in Pennsylvania-New York-New Jersey, Massachusetts and the Midwest. Most of the growers in all areas felt that carnation production could continue to expand nationally.

Reactions were mixed regarding competition between areas. Northern California was the only area which did not strongly indicate that it was being affected by competition from other areas. Most growers in all the other areas felt inter-area competition was a factor affecting their particular business. Colorado growers listed California as competition. The Midwest and eastern carnation producing areas indicated that both Colorado and California were strong competition.

This is the first of a series of three reports on the economics of the U.S. Carnation Industry. Bulletin 197 will continue an analysis and summary of producers. Bulletin 198 will report on carnation shippers and wholesalers.

Your editor,

W. D. Holley

W. D. H.

COLORADO FLOWER GROWERS ASSOCIATION, INC.
OFFICE OF EDITOR
W. D. HOLLEY
Colorado State University
Fort Collins, Colorado

FIRST CLASS