

Commercial Cut Flower Industry

further production increases without substantial increase in acreage may cause changes in successful marketing practices

D. B. DeLoach

Beginning a two-part article based on an analysis of the growth potential of the commercial cut flower industry.

New or improved fertilizers, insecticides, and fungicides have enabled commercial growers of cut flowers to increase yields and improve quality. In addition, better handling techniques, moisture and temperature controls, and the speed and flexibility of transportation have done much to maintain product quality between shipping points and distant markets. The expanding output of carnations, chrysanthemums, gladioluses, and roses in California, Colorado, Florida, Illinois, and Iowa for out-of-state consumers has been feasible because of improvements in transportation facilities and handling methods.

No reliable statistics are available on how much recent technological improvements have affected yields per acre or per unit of greenhouse area, but some light may be thrown on the effects by a comparison of the changes in production under glass, open-field acreage, and numbers of growers with the changes in total sales value of the products.

According to the latest—1954—Census of Agriculture, an estimated 42,085 open-field acres and 3,875 acres of greenhouse space were used for commercial flower production. The space used to produce cut flowers, potted plants, florist greens, and bedding plants under glass increased about 96 acres, between 1949 and 1954, while open-field acreage of the same products decreased 9,142 acres. The number of greenhouse growers was 1,089 less and the number of open-field growers was 3,299 less in 1954 than in 1949.

Despite the decrease in the number of acres and growers, 1954 sales were up \$12,000,000 above 1949. The sketchy price information available for cut flowers indicates that an increase in volume accounted for the higher sales.

Small growers, in particular, appear to have some problems in utilizing fully their land, greenhouse space, and labor for producing flowers. Many growers—to use their time more fully—sell their own products and those growers with sales of less than \$10,000 annually sell more than 75% of their output directly to consumers. The percentage of sales direct to consumers as a part of total

firm sales decreases as the volume rises. The combination growing and retailing activity often provides growers with the best outlet for their own labor and, frequently, that of some members of their households. The 1950 Census of Agriculture shows that growers depend on part-time paid employees and unpaid family labor for more than 38% of their labor force. The smaller operators seem unable to use fully their employees' time, a further indication of the underemployment of production labor.

Many growers believe the output of flowers can be increased greatly, provided market conditions are favorable. By expanding only slightly the existing acreage, a heavy volume of each of the major kinds of flowers could be brought onto the market within a short time.

The use of plastic covers for greenhouses speeds up construction and greatly reduces the initial capital investment. The more permanent-type, glass-enclosed structure, preferred by most operators, is not essential in flower production in the milder climates. Plastic-covered structures also are adequate for temperature and moisture controls to increase output and quality.

The 1954 Census did not report greenhouses of less than 6,000 square feet. If that figure is used, a minimum investment of \$1,500 to \$2,100—at an estimated cost of 25¢–35¢ per square foot without heat—would be required for such a structure. However, many part-time growers use far less space than 6,000 square feet. Such a low initial investment would attract commercial fruit and vegetable growers to floricultural operations if market conditions were favorable.

Although new production methods have raised the capacity and output of the floricultural industry, growers have had to absorb higher total production costs in facilities, equipment, and supplies which must be utilized to the best advantage to keep total and unit costs at a minimum. This condition tends to exert pressure on growers to increase output, with a resulting unbalance of total supply with total demand.

Growers usually have a choice of selling: 1, direct to consumers from their own retail stores, roadside stands, or routes; 2, to wholesalers and jobbers di-

rectly or through commission men or consignment brokers; or 3, to retail stores.

The volume of sales made direct to consumers by commercial growers is believed to be small because it is seldom possible for a grower to maintain a retail store with his own flower production. When growers do enter the retail-store flower trade, they do so on the assumption that, except for certain seasonal operations, the bulk of their supplies must be bought from wholesalers.

Roadside stands and retail routes—quite common in most sections of the country—afford a seasonal market outlet among consumers who normally do not buy flowers through established retail stores. A minimum of service is involved in these sales.

Retail route sales of cut flowers by growers are of negligible proportion. It appears that there is some seasonal movement of flowers through this channel, but there is no indication that retail route sales are or will become of any great importance as a means of marketing flowers.

According to available information, it is doubtful whether more than 10% of the total dollar sales by growers are made direct to retail stores. Such sales are of much less importance in large metropolitan centers than in medium- and small-sized communities.

In the past the close proximity of growers, wholesalers, and retailers permitted purchase and sale by inspection, but—as the principal growing areas moved farther from markets—sale by inspection became less feasible. The lack of adequate standard grades has handicapped trading on a specification basis and for that reason, among others, growers now ship the greater part of their flowers to commission and merchant wholesalers on consignment. This practice affords buyers an opportunity to inspect the shipments and eliminates much of the risks merchant-wholesalers would incur by outright purchase. But it means that all risks except selling charges, if the products are not sold, are borne by the grower or shipper.

Consignment sales are of less importance where growers do a considerable part of their own marketing, as in the

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CELERY

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and harvested in June escaped damage and showed only a trace of virus infection. In contrast, celery set out during April and May and harvested in July showed a definite increase in the percentage of plants infected. Severe damage was first noted in late June and became progressively more severe in July, August and September. Celery planted following the last week of July and harvested during the latter part of October, in November and December usually showed only a low percentage of infected plants.

The leafhopper populations in celery usually decreased during July and August. Because no reproduction of the aster leafhopper has been noted on celery, the spread of aster yellows virus appears to be entirely dependent on the insects that move into celery from other locations.

The percentage of leafhoppers naturally infective with the aster yellows virus was determined by monthly collections in the natural breeding areas. Leafhoppers were collected and fed in groups of 10 on healthy test plants to determine the percentage actually carrying virus. Seasonal infectivity of the leafhoppers would indicate when and from what habitats the insects were potentially the most likely to spread the virus.

The percentage of aster leafhoppers found to be naturally infective varied with habitat, season, and the predominant host plant in the area. Usually about 2% were naturally infective during April. As the season progressed, the percentage of infective individuals increased to 12% in June, 22% in August and reached a peak of 36% in September of one year.

It is evident that the period of highest disease incidence in celery does not coincide with the presence of the highest number of leafhoppers in the celery fields. This is true because it takes 2-3 weeks for the disease symptoms to develop on the celery plants and also because the percentage of leafhoppers carrying virus increases as the season progresses.

Control Program

A spray program—designed to control the leafhoppers in their natural breeding sites—was initiated in the spring of 1955, soon after leafhopper populations were noted in the creek area. DDT oil sprays were applied by a fixed wing airplane at approximately two week intervals beginning April 16 and continuing until the final application on July 21.

The spray program was repeated in 1956 and 1957 with applications made by

helicopter. In 1956 applications were made on May 10-11, May 21-23, June 6-7, June 20-21, and on July 3-8. In 1957 only three applications were made—on April 19, May 6, and June 25.

In 1958, because of the late and heavy spring rains, the creek carried a heavy flow of water over an extended period of time. This resulted in conditions unfavorable for the development of a leafhopper population until July when only a single application of insecticide was necessary.

Losses due to aster yellows infection of celery in the Arroyo Grande Valley have been light—less than 5%—during the past four years. The logical conclusion to be drawn is that the DDT reduced the leafhopper population at the source and was responsible for the reduction in the amount of aster yellows infection of celery. However, what the disease situation would have been if no insecticides had been applied to the creek can not be determined because it was not possible to leave untreated checks without jeopardizing the whole program.

The cost of the control program has been nominal to the cooperating growers who contributed each year an amount equal to the cost of making one application of DDT to each acre of celery they grew.

J. H. Freitag is Professor of Entomology, University of California, Berkeley.

T. M. Aldrich is Farm Advisor, San Luis Obispo County, University of California.

R. M. Drake is Deputy Agricultural Commissioner, San Luis Obispo County.

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CODLING MOTH

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acre for each application has tended to give better control than obtained with DDT. Further, Guthion has a suppressing action on spider mites and the walnut aphid. Sevin at eight pounds of 50% wettable powder per acre for each application has resulted in control equal to that obtained with DDT. Although Sevin tends to suppress the walnut aphid population it may—as DDT does—induce an increase in the spider mite population.

Trithion at one pound per acre has not given adequate control of the codling moth when used alone. However, in combination with DDT, to control the walnut aphid and spider mites, Trithion has a tendency to improve the control of the codling moth.

Ethion at high dosages has shown promise in controlling the codling moth, but has not equaled DDT. Delnav also has resulted in insufficient control.

A careful examination of the young developing walnuts usually indicates whether the codling moth control program is adequate. When boring into the green husks the caterpillars leave piles of brown frass at the entrance of the burrow. At first, the piles of frass are tiny and can be overlooked easily. Late first brood and second brood caterpillars usually penetrate the nuts at the side or the base. The brown frass produced shows up rather distinctly on the green husks. If 1.5% or more of the nuts are being attacked a treatment is probably justified.

A. E. Michelbacher is Professor of Entomology, University of California, Berkeley.

C. Q. Gonzales is Research Assistant, University of California, Berkeley.

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Los Angeles and San Francisco market areas and, particularly, for cut flowers and foliage sold in the state. For out-of-state shipments, consignment selling is greater, especially when the deals are with central-market wholesale dealers who are primary distributors for smaller wholesalers and jobbers.

Specialization appears to be growing in the cut flower trade, as is evidenced by the growth in the number of special buyers in the Los Angeles metropolitan and other markets. The buying specialists have the job of selecting products in the wholesale markets and delivering or holding them for their retailers, for a commission. Such an arrangement provides the retailer with a skilled buyer who recognizes and can select flowers of the desired quality characteristics. In an industry that largely depends on sale by inspection, buying specialists could provide a very beneficial service to the retail trade.

Wholesalers attempt to establish and maintain long-time business relations with both growers and retailers. Central market wholesalers are often very solicitous of near-by grower interest. They assure such growers a regular outlet and advise with them on market conditions and prices as a means of assuring themselves a source of supply and minimizing the likelihood of direct sales to retailers.

Wholesalers are equally solicitous of their retailers. Generally, they follow rigidly a policy of adhering to the established grower-wholesaler-retailer market channel, introducing whatever commission men and jobbers may be needed to facilitate sales.

To be continued

D. B. DeLoach is Professor of Agricultural Economics, University of California, Los Angeles.