

and costs for the 3 highest and 3 lowest inventory adjusted sales per employee nurseries.

Inventory adjusted sales were above production costs for the most productive container and foliage nurseries. However, costs exceeded inventory adjusted sales for the least productive container and foliage nurseries. The most productive container nurseries had greater total sales than the least productive container nurseries. The higher productivity foliage operations had less total sales than the lower productivity foliage nurseries. This indicates labor was less productive in foliage operations with higher sales.

Labor is the largest single cost for both types of nurseries. The wage bill ranged from 36% of total costs for the most productive foliage nurseries to 46% for the least productive container nurseries. Thus, the most productive foliage nurseries spent 36 cents of each production dollar on labor, while the least productive container nurseries spent 46 cents of each production dollar.

For the most productive container nurseries, labor cost was 37% of total costs, 9% less than the least productive container nurseries, and only 1% higher than the most productive foliage operations. In the least productive foliage nurseries, labor costs accounted for 39% of the total cost, 3% above the most productive foliage firms.

#### Determining Value of Labor

Relating labor compensation to nursery production is a problem where physical production quotas are difficult to establish and complicated to administer. Labor's value in each operation varies since the wage bill, as a percentage of all costs, varies. That is, values of output from each unit of labor are not equal.

One basis for determining labor value is to establish the value of plant production needed to pay each employee and cover his pro rata share of all other production costs. For the nursery to break even, inventory adjusted sales must cover labor costs and all other costs. In the case of the most productive foliage nurseries, \$1 worth of plants must be produced each time an employee is paid \$.36. Otherwise, the employee is not "earning his keep."

Extending this argument, one can determine plant sales needed to pay the annual wage bill and cover all costs. To do this, divide labor cost by the proportion labor represents of all costs. For example, the most productive foliage nurs-

eries need to produce \$336,950 ( $\$121,510 \div .360617$ ) worth of plants to break even.

Further, dividing an employee's annual wage by the proportion labor represents of all costs gives the inventory adjusted plant sales he must produce to cover his wage. For example, if an employee is paid \$7,500 per year, he must produce \$20,798 ( $\$7,500 \div .360617$ ) worth of plants to cover his wage and his share of other costs. Similarly, other values of plant production required to pay other employees can be determined.

#### Nursery Applications

First, the nurseryman should calculate some or all of the labor productivity measures listed in Table 1. Comparing these measures with those in Table 1 shows the nurseryman his labor performance relative to nursery business analysis participants.

Calculating and comparing these measures for several years can identify trends in labor productivity within the nursery and assist in evaluating production adjustments made to improve labor output. Declines in labor productivity over time may be symptoms of problems which can reduce nursery profits.

Some problems may be: poor nursery layout, inexperienced employees, poor worker attitude, disorganized flow of supplies and materials through the nursery, obsolete, inadequate, or poorly maintained equipment, lack of supervision, too much supervision, or improper production practices. No labor problem is easy to solve. However, some can be solved by readjusting employee work habits or motivation. Others may require capital expenditures to redesign nursery facilities. Identifying the problem, determining corrective action, implementing a change, and evaluating the outcome are often difficult.

#### Literature Cited

1. Gunter, Dan L. 1976. Business analysis of container nurseries in Florida, 1975. *Univ. of Fla. Institute of Food and Agricultural Sciences, Economic Information Report 63.*
2. -----, 1976. Business analysis of foliage nurseries in Florida, 1975. *Univ. of Fla. Institute of Food and Agricultural Sciences, Economic Information Report 60.*
3. Florida Cooperative Extension Service, Univ. of Fla. Institute of Food and Agricultural Sciences, Thirty Wholesale Container Nurseries, Producing Woody Ornamental Nursery Plants in Florida. Business Analysis for 1970.

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## DEVELOPING YOUR OWN MARKETING PROGRAM<sup>1</sup>

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**Abstract.** Established marketing channels and marketing systems are available for most commodities grown in the United States. However, many growers of many commodities prefer to develop their own marketing program for a part or all of their production. Alternatives for nurserymen include grower retailing operations at the nursery, at curbside, through roadside stands, with flea markets or in farmers'

markets; developing arrangements with local retail outlets; and developing an independent sales staff and sales organization. Some advantages and disadvantages of each are outlined in this paper.

Established marketing channels and marketing systems are available for most agricultural commodities produced in the United States including ornamental horticultural commodities. However, many producers prefer to develop their own marketing program for a part or all of their production. This may be because established marketing systems are relatively inaccessible to these producers, because costs associated with established systems are too high, or because returns are too low.

Alternatives available to producers of ornamental horti-

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cultural products include 1) direct grower retailing, 2) sales through local retail outlets, and 3) developing an independent sales staff and sales organization. There are both advantages and disadvantages for each of the alternatives.

### Grower Retailing

Grower retailing arrangements to consider include retailing at the nursery, from the back of a truck at curbside, from a roadside stand, at a flea market or through a farmers market. Ornamental horticultural commodities are more suited for direct grower retailing arrangements than many other agricultural commodities because they can go directly to the consumer without further processing and packaging. However, there are both advantages and disadvantages to consider.

#### Advantages

1. *Volume.* Grower retailing is suited to marketing small quantities of a given variety. It is especially suitable for selling small quantities of several varieties which are available over an extended period of time.

2. *Flexibility.* A grower can market his material as it matures and becomes available. He need not operate under as strict a deadline as would be the case if he were growing under contract.

3. *Quality standards.* Generally, quality standards are less rigid in a grower retailing operation than when selling through established marketing channels. Downward adjustments for lower quality material may be minimal while upward adjustments for excellent quality may exceed those experienced through established marketing channels.

4. *Marketing margins.* Total marketing costs tend to be lower through grower retailing operations than through established channels. Thus, a larger share of the consumers expenditure is available to cover costs of growing. This is especially true for those alternatives that do not require the grower to build additional retailing facilities at the nursery.

#### Disadvantages

1. *Market.* There is no guaranteed market. The grower offers what he has and the consumer takes what he wants. Commercial retailing operations cut back on their orders to wholesalers as customer demand drops off. But for a grower-retailer, the supply to be moved is difficult to change once production plans are completed. He may have a surplus if anticipated demand is not realized, or he may have to turn customers away if demand is greater than anticipated.

2. *Customers.* Grower retailers often find it difficult to attract customers and more difficult to keep customers. Growers need a convenient location, a large enough selection of varieties and acceptable quality to attract customers and to entice customers to return.

3. *Population.* Commercial growing operations can easily produce more material than can be direct marketed in smaller communities. Larger population centers are required for there to be enough nearby people willing to patronize most commercial volume grower retailer arrangements.

4. *Marketing costs.* Although total marketing costs tend to be lower in direct marketing arrangements, certain grower costs will be higher. Labor, for instance, is needed for both growing and selling activities. Similarly, if the retailing operation is located away from the nursery, additional transportation will be required. Frequent trips with partial loads in order to maintain fresh stocks results in higher costs than transportation required for marketing through established marketing channels.

5. *Excesses.* Grower retailers may have difficulty in handling unsold items. This is especially troublesome when the amount left is too small to wholesale, yet too large to discard.

6. *Pricing.* The grower must establish his own price in line with what he knows about his costs, retail prices for similar varieties and sizes of plants and consumer acceptance. When selling at a flea market, the grower-retailer may face the additional problem of meeting the prices of other growers whose quality may be lower or who for some other reason want to "dump" part or all of their material at a lower price.

### Local Retail Outlets

Some growers have arranged with local retail outlets for selling their material. Arrangements vary from supplying material at wholesale to placing material in stores on a consignment arrangement. The stores may be specialized plant stores and garden centers or stores that handle plant material as a side line such as variety stores and grocery stores.

#### Advantages

1. *Stability.* Once a grower develops a relationship with a retail outlet, he usually finds he has a dependable market and a continuing outlet for his plant material.

2. *Flexibility.* Arrangements with a local retail outlet may be worked out for but one or for several varieties and for one or more than one production pattern.

3. *Costs.* These marketing arrangements usually eliminate the cost of maintaining a retail sales outlet and incurring additional sales expense.

4. *Income.* Sales through a local retail outlet usually provide a higher and more consistent level of income for smaller nurserymen than most of the other alternatives available to him.

5. *Market.* A continuing arrangements with local retail outlets can establish a fairly well known market before production expenses are incurred. Prices to be received and marketing costs can be estimated with reasonable reliability.

#### Disadvantages

1. *Scarcity.* Growers are finding it increasingly difficult to find a retail outlet that will buy direct. More and more retailers want to buy all items from only one source throughout the year. Certain chain grocery and variety store outlets are required to purchase through their parent company warehouse. Many independent stores are now affiliated with cooperative purchasing arrangements. Opportunities for sales through local retail outlets are declining.

2. *Dependability.* A grower supplying a local retail outlet must prove himself a dependable and consistent supplier of plant material. Quantities must be available within the agreed upon tolerance. The retailer who has accurately assessed his market needs cannot use larger quantities than were agreed upon. If quantities supplied fall below agreed upon levels, the retailer may be reluctant to enter into future agreements. Deliveries must commence at the time and continue through the period agreed upon. Quality must be maintained at a high and consistent level.

3. *Large stores.* In metropolitan areas, one store will often need a greater volume than a small grower can supply.

4. *Small stores.* In less populated areas, a grower may have to rely upon more than one store to handle his entire output. Each store may have different variety or quality requirements.

## Developing An Independent Sales Staff and Sales Organization

Many of our larger growers have chosen to hire and train their own sales staff and develop their own sales organization. A lot of our nurseryman do not have sufficient volume to warrant this kind of expense or effort. On the other hand, larger volume growers often are unable to market their entire output through the other grower developed market outlets discussed above. These growers must either market through established marketing systems or develop a marketing organization of their own. There are both advantages and disadvantages to this approach, also.

### Advantages

1. *Control.* The grower with his own sales organization can be in complete control of the sales activity and sales effort for his material. This can be financially beneficial when prices are high and sales are booming. When prices are low and normal market outlets are glutted, the grower may find the lack of contacts with established marketing systems leaves him to the mercy of the ability of his own sales organization to compete with other established systems. Both his affectiveness as a grower and as a director of sales activities will play a part in his outcome.

2. *Marketing margins.* The grower selling through his own sales organization usually retains a larger share of the consumer dollar than growers marketing through established marketing systems. He is doing the job of both the grower and the established marketing system. This is an advantage only as long as his sales organization is efficient enough to net his growing operation more than he would receive going through established systems.

3. *Opportunity.* Potential for expansion in production and sales is limited only by the national market and effectiveness of his sales organization. The grower is not limited by inflexibilities in the established system. Special custom packaging and handling techniques can be used to capture segments of the market.

4. *Service to others.* A grower with his own sales organization can also accommodate the production of other growers if he wishes to. This can result in a expansion of his

sales volume and possibly add other varieties that might be complementary to his own offerings.

### Disadvantages

1. *Duplication.* A grower who develops his own sales organization is duplicating the facilities already available through established marketing systems including those of other growers who also have developed their own marketing organization.

2. *Cost.* There are economics of scale in marketing operations. Growers with insufficient volume to warrant the development of a complete and effective sales organization will limit the ability of his staff to do a good sales job for him. Insufficient volume to fully utilize the sales organization developed will result in high cost per unit sold, thus limiting returns to the growing operation.

3. *Product line.* A grower with his own sales organization will need either to grow or to obtain through purchase or contract with other growers sufficient volume of reliable quality to develop and establish a reputation and recognized product line for his business.

4. *Personnel.* A good sales organization requires competent, well trained and well paid personnel to compete successfully. Finding such people can be a problem. Without adequate volume, the cost of retaining this kind of personnel will be prohibitive.

5. *Seasonality.* Most growers who produce only seasonal crops such as poinsettias and Easter lilies probably cannot afford to maintain an effective year-round marketing organization.

### Summary

This has been a brief review of advantages and disadvantages of alternatives available to growers wishing to develop their own marketing program. No single alternative will work well for all growers. Some growers may be able to specialize in one alternative, while others may find utilizing more than one alternative works best for them. Still other growers will find that they are best served by utilizing a marketing system that is already established and operating.

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## CONTROL OF BACTERIA IN CUT FLOWER VASE WATER<sup>1</sup>

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**Abstract.** The slow-release chlorine compounds sodium dichloroisocyanurate (DICA) and 1,3-dichloro-5,5-dimethylhydantoin (DDMH) effectively maintained low counts of bacteria in cut flower vase water. A 1-minute exposure to 50 mg DICA or DDMH/liter killed cells of 7 of the 11 bacterial species tested while a 5-minute exposure killed cells of all 11 test species. Cut flowers held in DICA or DDMH had slightly improved quality. Greatest improvement in cut flower qual-

ity and longevity was obtained when DICA or DDMH were combined with sucrose.

The presence of bacteria in cut flower vase water has been amply documented (1, 3, 4, 8). Aarts (1) who demonstrated the effects of bacteria on wilting and longevity of cut flowers, concluded that bacteria act directly on cut flowers by physically blocking the stems and indirectly by producing substances that are absorbed by the flowers. Ford et al (4) showed that most of the microorganisms associated with cut flowers are soil and water-borne bacteria. Dansereau and Vines (3) showed that bacteria infiltrate and move in the stems of cut snapdragons. Those results confirm Aarts's premise and imply that a large population of bacteria may physically plug the flower stem. Another dimension was added to the problem of cut flower bacteria when Taplin and Mertz (8) published their findings. They reported excessively high microbial populations in vase

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