

## **ECONOMICS IN PROPAGATION—A KEY TO HORTICULTURAL SURVIVAL**

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It has been 14 years since I last spoke before this Society. At that time I was 27, full of ambition and naive idealism. I was part of a symposium discussing the production aspects of hybrid rhododendron production and was beginning to formulate the plans for restructuring and moving our company. Very little thought was given to the future economic policies of companies in our capitalist system; I was aware of the historical view and felt that the future was relatively secure. As I mentioned, I was very naive.

The last 14 years have been very turbulent; our economy has experienced a series of "crises", both real and imagined. There have been problems with energy in production, distribution, and availability. There have been rapid and rather severe "boom and bust" cycles in the economy; at one point the experience has been severe double-digit inflation with high interest rates, followed by severe deflation with an accompanying drop in rates. Consumer demand for goods has been erratic at best and very hard to judge. Long time standards used in the business world for stable projections of future business needs have either changed or been eliminated in very rapid fashion, making projections very difficult. The financial community has been especially erratic; the key here has been to find a financial institution that understands the needs of a modern horticultural business and allows flexibility in financing. The key word, especially for the last 6 years, has indeed been "survival".

Many may ask, "What on earth does this have to do with propagation? Unfortunately, many businesses have failed or will fail in the future because there is not a clear understanding of the economic process involved in plant production of which propagation is a very integral part. To help in understanding this process, economics should be concisely defined. During some of my research for this paper I came across an interesting and very valid definition of economics. "Economics is concerned with the efficient utilization or management of limited resources for the purpose of attaining the maximum satisfaction of human material wants" (1).

If this definition is carefully examined, one realizes that many companies in the horticultural field do not understand this concept; the business policies followed eventually doom them, at the least, to gross inefficiency, or at the worst to outright failure. I can relate to this problem as our company faced this concern about 6 years ago.

This was an extremely humbling experience and was brought about by the advent of our original computer system. I was keenly aware of the substantial capability for the system to process accounting information and allow us to begin to forecast for the future. With the help of some outside programming in addition to our initial purchased software I began to project ahead. The shock was great! Based on historical reference for sales and company expense and plugging in analysis information for future sales trends up to 3 years in advance, our company was going bankrupt by 1984. It was obvious that something was very wrong.

Challenge has been a large part of my life; I have learned a great deal from it. This looming situation was no exception. I have coined a corny phrase that helps me through tough times: "Ignorance is the next best thing to intelligence." The inference here is that if a situation is analysed without preconceived ideas there is usually a clear solution. In this case I began to realize that our whole economic structure was incorrect and had to be changed rapidly. My first priority was to gather information specific to horticultural need.

You can imagine my surprise when I found a void of available information. Either we were not considered a viable industry or those in the know were not telling. Thus, my only alternative was to turn in another direction. At this time I began to follow a policy that I maintain to this day; I consider our company an entity manufacturing a product for sale, nothing more and nothing less. Instead of trying to gather information within our field I gathered information about manufacturing in general. For profitable production of any item I came up with a series of simple yes/no questions:

- 1) Is there a demand for your intended product?
- 2) Is the demand for your intended product exceeded by present supply?
- 3) Are there adequate raw materials for the production of your intended product.
- 4) Can your intended product be properly distributed for resale?
- 5) Is there extensive competition for the production of your intended product?
- 6) Can you be cost-efficient in the production process?
- 7) Does a marketing plan exist for your intended product?
- 8) Does your intended product have an effective production life cycle beyond which profit will no longer be obtained?

By using simple yes/no questions I was able to build an objective picture as to how to begin a change in our production emphasis. Most certainly marketing concepts came into the situation. Briefly, we established a marketing concept that was to promote our product

to the maximum number of people. We examined all the procedures followed by our competition and formulated all the quality control and service control policies needed to be successful. One key issue was our price structure, especially in relation to prices being set in the marketplace by our competition for a comparable product. In order to set a profitable price one had to know the final cost of production.

There has been much discussion as to how to determine cost of a product. Relationships have been made to direct labor costs as a specific percentage of final costs; other procedures have carefully itemized each direct cost to a specific operation, such as the propagation procedure. After carefully studying all available information I came up with a procedure that was extremely beneficial to us. I call it the "loaded cost" factor for all of our production needs. Many years ago we decided that we could maintain better quality control of our production if we could maintain a full-time, year-round labor force. The idea was to allow this labor force to be involved in all of the jobs necessary for the propagation and production of the crop. Our staff became multi-skilled and flexible in all areas. By spreading out the peaks and valleys of the expense we became a true manufacturing unit with stabilized monthly costs for production.

As we now had to maintain our production facility at higher operating levels for the winter months and lower levels for the growing season period we found that blending of expense occurred during the production cycle. Thus, I developed the total dollar amount needed for the company to operate at a break even situation for one complete year. Every known expense was factored, and this gave us a base amount of inventory to sell in numbers, based on existing selling price. As our expense system was computerized I had a weekly check as to total expense figures during any specific work situation. These figures were tabulated every month into a cash flow statement for expense. If necessary, we could cross reference our cash flow statement with our weekly work journals to determine more precise accounting. This is exactly what took place in the propagation area. Our cost of propagation was accurately determined based on use of materials, labor, cost of unrooted cutting, the loaded cost factor needed to keep the business doors open, and the cost of propagation loss. We then had complete expense factor for a surviving rooted cutting. This expense factor is called our cost of propagation. From this point we could then follow the same procedure for all sizes of plants in our production system. Each time we determined our total "loaded" cost; this was the amount of money necessary needed to satisfy all financial requirements to keep the business at a break even point. Every size plant was calculated so that appropriate production levels could be determined.

At this point it was necessary to divert our analysis into three different directions. First was a market analysis to determine exactly where the voids existed in the marketplace as to quality product, quantities, sizes and service orientation. Once this was completed we could then analyze our production facility as to changes needed to satisfy the market analysis. Finally, once the production needs were determined, the propagation facility could be analysed and reorganized in order to satisfy the production needs. Briefly, we found that we could supply the voids by ruthlessly eliminating certain sizes of plants due to extreme competition and start to grow different sizes not available at that time. This allowed for tremendous expansion within the existing facility. At the same time tests were undertaken to formulate a similar plan in the propagation area. The net result was we were able to increase propagation by 70% in the existing area, thereby lowering cost. Production increased by 200% in the same existing area; lower costs carried forward allowed for purchase of material either as liners or semi-finished plants to grow on at a profit.

The process just described took 4 years to complete. I followed a very simple step by step process:

- 1) Recognize the problem.
- 2) Compile all available information needed in unbiased manner.
- 3) Determine dollar income to satisfy break-even point.
- 4) Extrapolate break-even dollar income into inventory requirement based on existing pricing.
- 5) Accurately determine cost of product starting with propagation and carry through entire inventory level.
- 6) Establish market analysis for product line and develop marketing strategy accordingly.
- 7) Maintain accurate records and continue market analysis and strategy for future needs.

I cannot be more firm in emphasising the importance of marketing strategy in business survival. One of the main keys to our continued success and profitability has been a keen application of marketing principles tied with accurate cost accounting. At the beginning of this 6-year period our company was in low six-figure income and facing extinction. By proper application of standard manufacturing principles in marketing and accounting we are presently in seven-figure income holding future signed purchase order contracts for 3 years hence. Our net profitability has increased substantially and we project that it will continue to do so if a vigilant eye is kept to total market analysis. It is a concept of "back to basics", which I feel is an integral part of this Society and should be

of every horticultural enterprise that wishes to survive and succeed in the future.

### LITERATURE CITED

1. Campbell, R. M. 1981. Economics: Principles, Problems, and Policies, 8th ed. McGraw-Hill, New York.

## **STICKING TAXUS AS UNSTRIPPED CUTTINGS, AN UPDATE**

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The following is an update on how we are processing and handling *Taxus* cuttings at Zelenka Nursery.

At the Grand Rapids IPPS meeting in 1982, you saw approximately ½ of our *Taxus* crop stuck as unstripped cuttings and the balance stuck traditionally as stripped cuttings. We talked about the reasons and what we had found out to that point on the tour. We have refined our process to balance labor efficiency with rooting efficiency.

The early 1980's saw an imbalance in growth. Production was increasing faster than sales, so we were looking at ways to reduce labor while keeping our quality up. In November 1980, an R&D project was initiated to stick 5,000 cuttings of two *Taxus* cultivars as unstripped cuttings. The goal was to decrease the cost per cutting by \$0.001 cents, while not reducing quality. That first year's experiment was successful, so we increased it in 1981 to 5,000 cuttings of 4 *Taxus* cultivars. This showed even more favorable results. We not only received a labor savings, but we saw a better rooting percentage on the unstripped than on the stripped cuttings. This prompted us to stick ½ of the crop in 1982 as unstripped. After evaluating that crop, we decided that all cultivars, except *T. cuspidata* 'Densiformis', would be stuck unstripped.

Let me regress a moment, to explain how we were processing the cuttings. They were taken by hand off 5-year liners in the fields. Terminal and basal ends were cut (leaving the cutting 6 in. long), hormone-treated, and stuck in the benches with bottom heat. The only difference was that the stripping action was eliminated. This was a significant decision, not only because of labor savings, but from an insurance point of view. We had several medical cases of "Carpal Tunnel Syndrome" that had been associated with clipper usage and the stripping action.