

## **COSTING PLANT PRODUCTION BY THE USE OF REASONABLE EXPECTANCY (RE)**

**RALPH SHUGERT**

*Zelenka Nursery Inc.*

*16127 Winans*

*Grand Haven, Michigan 49417 U.S.A.*

Costing plant propagation by the use of reasonable expectancy (R/E), is an area of consideration of plant propagators world-wide. The Index of our Society lists 17 papers under the title of "Cost Accounting" and 30 papers under the title of "Costs" from 1950 through 1980. I vividly recall a paper presented in 1966 by James S. Wells (1) which created much discussion.

Jim used a formula as follows: If labor costs of the total personnel payroll are 50% of operating costs, the true cost of the operation is the sum spent in direct labor multiplied by four. As discussed at that meeting, and again in 1967, the formula rests on the premise of 50% labor costs in operating costs.

Zelenka Nursery Inc., located in Grand Haven, Michigan, USA uses a costing system based on man-hours. This system allows a production control process which enables them to record labor distribution by activity and simultaneously monitors efficiency. Flow charts to show costing at two departments, the greenhouse, and the liner farm, as well as a chart showing how loaded labor rates are determined, are shown in Figures 1, 2, and 3.

The genus used in this paper is *Taxus*, showing the costing in the nursery greenhouse and liner farm departments. We produce more *Taxus* plants than any nursery in the world, to my knowledge, so we have large numbers to work with. Work activities at the greenhouse relative to this crop would include the following: bench preparation, taking cuttings, preparation of cuttings, hormone application, sticking cuttings, culture, pulling cuttings, and grading. We have established an R/E amount/manhour for each of these activities.

For example, Code 1110 (taking *Taxus* cuttings) and Code 1210 (preparation of *Taxus* cuttings) have an R/E of 1,500 cuttings per manhour. Code 2311 (sticking *Taxus* cuttings) has an R/E of 2,000 cuttings per manhour. The production control R/E forms are filled out daily by the various division leaders and are turned into the Accounting Department. This data is then fed into the computer for an immediate printout to management. This R/E form shows non-productive hours such as travel between farms, coffee breaks, supervision, etc. The two right hand columns show the R/E and the percent of R/E for the crew and the crop. Simply, the R/E is established by timing how much a crew can accomplish at a given activity in one hour and then dividing by the number of workers in that crew.

This number is units/manhour and we make that 85% of the desired rate.

Example: Crew of five taking 6,375 Taxus cuttings in one hour.

$$6,375 \div 5 \text{ people} = 1,275 \text{ cuttings/manhour}$$

$$1,275 \div 85\% = 1,500$$

Minimum acceptable performance is 85% of the R/E and in many cases, we have employees who exceed 100% of R/E.

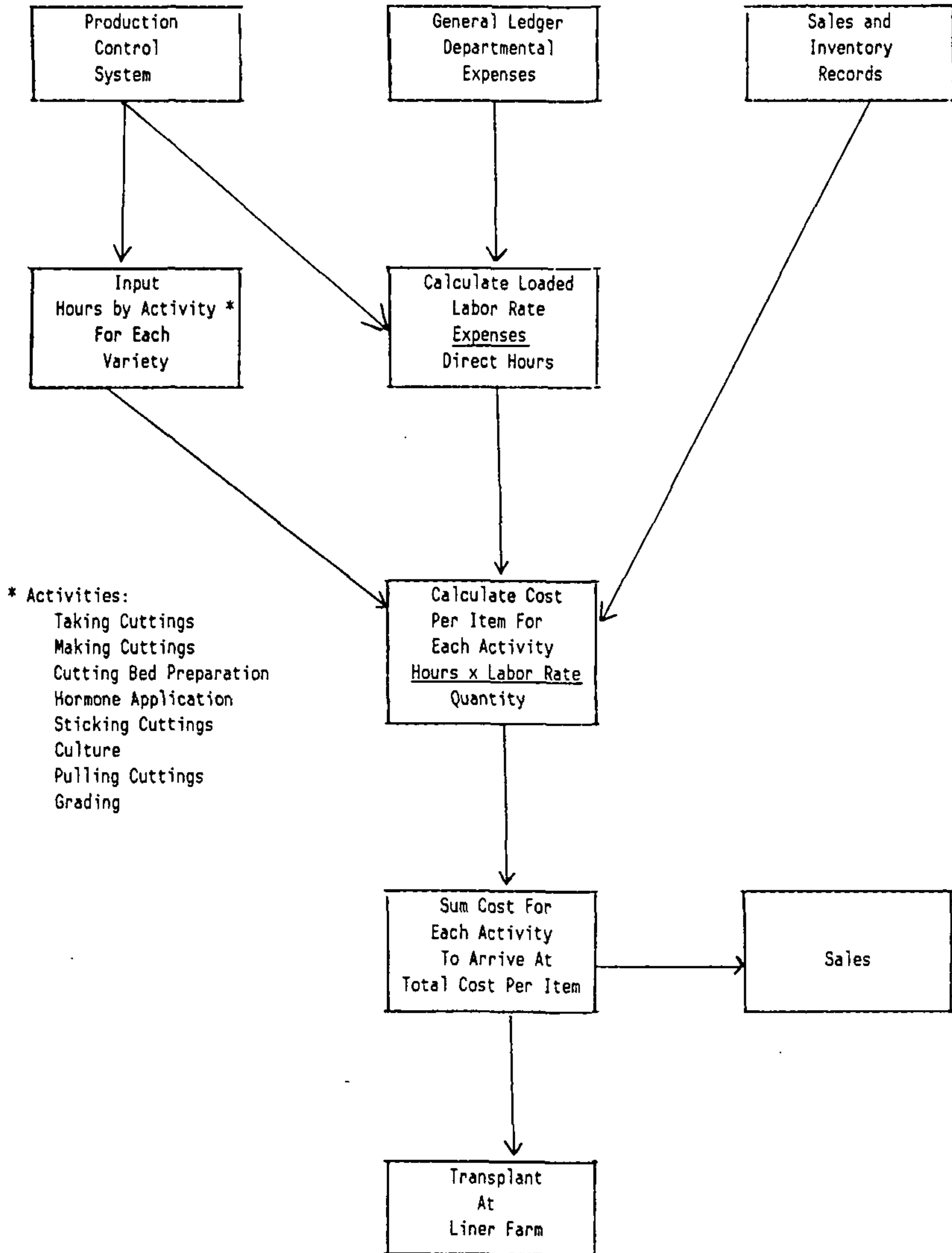


Figure 1. Greenhouse costing.

At this point, I would hasten to add that several United States nurseries have used this R/E system and it did not work for them. Without knowing all the details, I would suspect they had R/E rates set far too high. The R/E for each activity must be attainable! The "Thrill of Victory" is to equal, or exceed, an R/E: "The Agony of Defeat" is to work as hard as humanly possible and never achieve an R/E. If the R/E goals are unrealistic, this program will not work!

Two most commonly asked questions about this R/E concept are "piece work" and "rewards for exceeding R/E's." At our nursery we have no departments on a piece work program. We are fully aware that many nurseries do have such a program, but we feel that with our R/E program, piece work is not applicable to our program. The reward for exceeding R/E is a beautiful inner feeling of success.

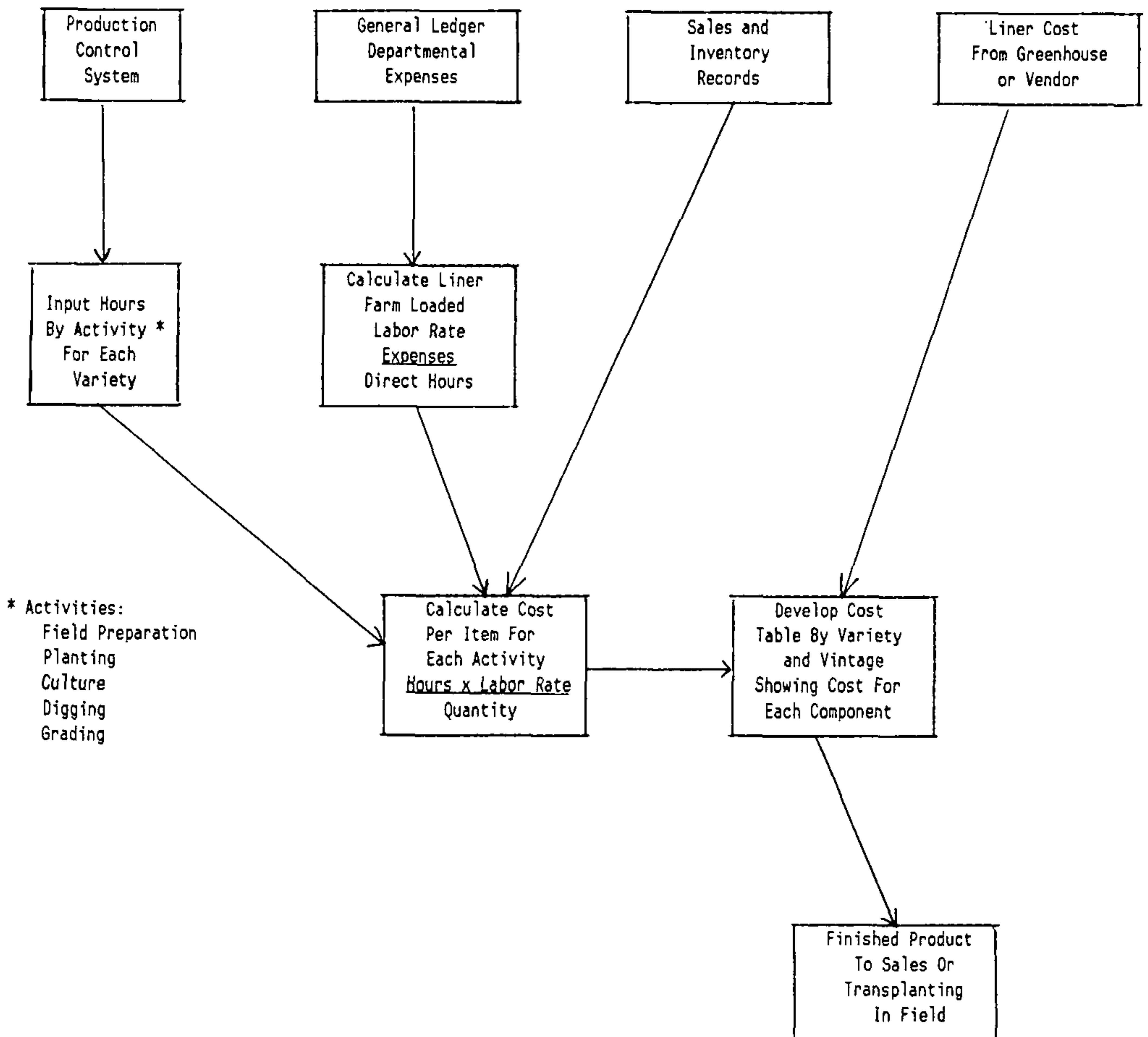


Figure 2. Linear farm costing.

There is no monetary reward, but there is a definite personal satisfaction reward. Normally, in the nursery community, people are hired and truly do not know what is expected of them, other than to "work as hard as you can"! The R/E system clearly tells them what is expected of them for the activity they are performing.

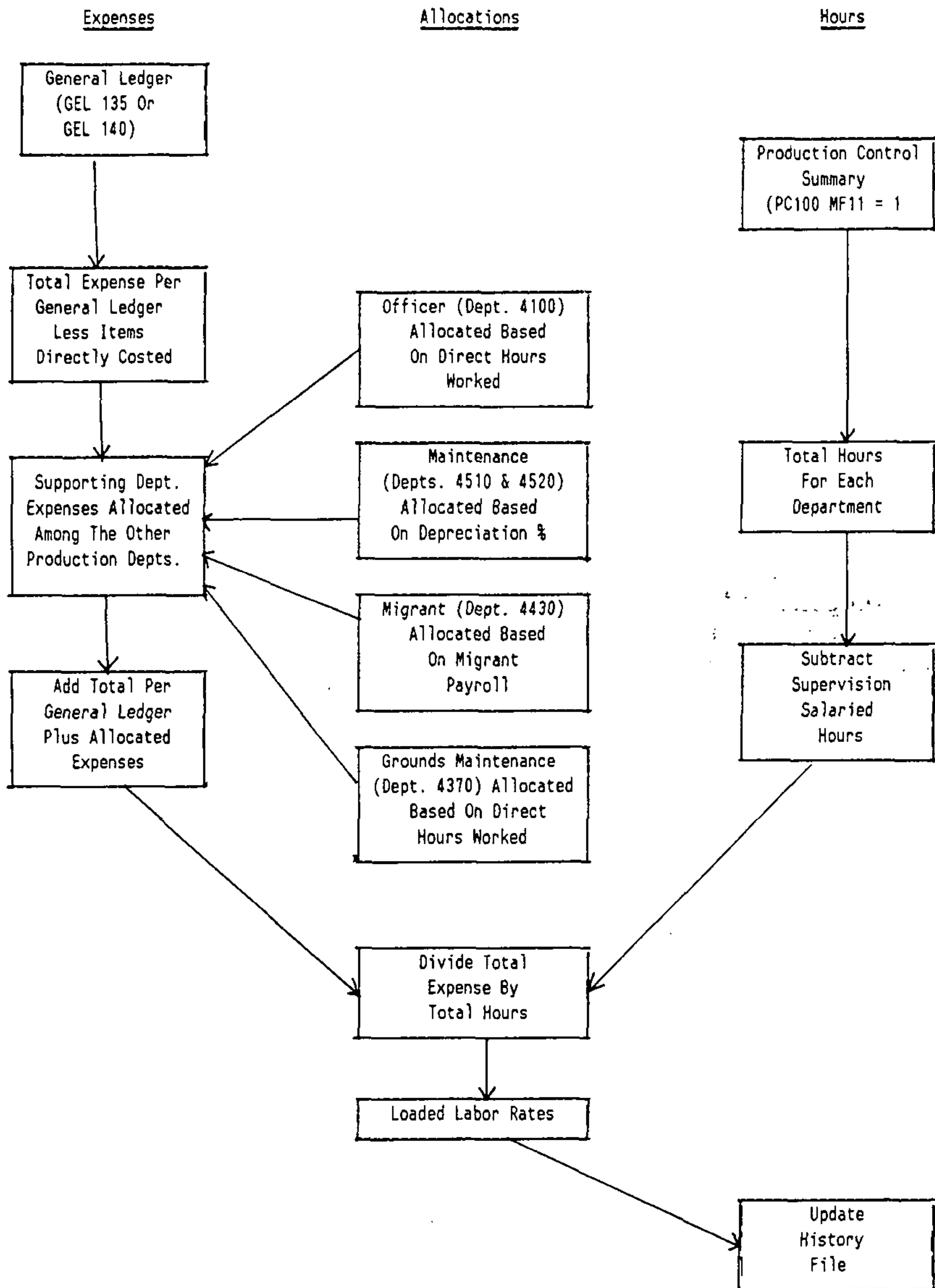


Figure 3. Loaded labor rates flow chart.

To further illustrate this point, after the *Taxus* cuttings are rooted, the plants go to our liner farm in transplant beds for three years. Activities which would have specific R/E's in that department include: field preparation, planting, culture, harvest, and grading. Again, repeating, it is mandatory that the production control R/E forms are turned in daily.

The philosophy behind this program is to determine the exact cost of each crop for intelligent and profitable pricing. I know that it never happens in New Zealand, but in the United States—I am sad to say—we have production nurseries that set their prices from a fellow nurseryman's catalog! Often, I have pondered how the neighbor arrived at his prices! This practice could and has created a domino effect. To show you how our nursery tracks this data, Figure 1 shows the greenhouse costing flow chart and Figure 2 depicts the flow chart for liner farm costing. Also, since there is some confusion as to how loaded labor rates are determined, I am attaching Figure 3. The hourly loaded labor rate is different in each department at our nursery.

I can sympathize with the words, "What in the world does this have to do with plant propagation?" I had the exact same thoughts in 1966 listening to a paper on the same topic. We must, in order to have a profit in our nursery, fully understand our true costs. If we cannot root a *Taxus* cutting profitably, in accordance with our company management direction, then there will be an effort to go outside the company and purchase from a vendor. Pure and simple, the nursery community is in business to make a profit! It is mandatory that data be recorded to assist us in tracking these costs. Nurseries hire propagators to put roots on cuttings, to germinate seeds, and to knit scions on understocks—economically!

To conclude these remarks, we all must be totally and fully committed to record keeping and true costing information. We all must "Seek and Share" all facets of plant propagation in accordance with the motto of our prestigious Society.

**Acknowledgments.** Considerable data in this paper were prepared by Mark Richey, head propagator, Zelenka Nursery, Inc. The figures were prepared by Richey and presented at the 1987 IPPS Eastern Region meeting as part of the exhibit portion of that Conference. I extend my deep appreciation to my co-worker and fellow propagator.

#### LITERATURE CITED

1. Wells, James S. 1966. Cost of production and how to determine it. *Proc. Inter. Plant Prop. Soc.* 16:184-189.