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Using Business Analysis in Ornamental Plant Nurseries¹

Alan W. Hodges and John J. Haydu²

Introduction

As the ornamental plant nursery industry in the United States has grown and matured, it has become increasingly competitive. Many growers are now experiencing problems of industry over-production, depressed prices, reduced profitability, and increased business failures. In this business environment it is imperative that nursery managers strive to make their operations as efficient as possible. In the face of uncontrollable market demand and prices, there are actions that can be readily taken by managers by using standard techniques of business analysis.

What Is Business Analysis?

Business analysis is the use of key indicators to evaluate a company's operational and financial performance in comparison to benchmark values. Benchmark data are available for most major industries, different types and sizes of businesses, and regions of the country. Sources of information for agricultural sector industries include the Farm Credit Bank and Robert Morris Associates (<http://www.rmahq.org>). Business analysis differs from accounting in that it brings together a wide range of both financial and non-financial information that is specific to a particular type of business. Comparison of an individual company to benchmark values

enables managers to identify its company's strengths and weaknesses in order to capitalize on its competitive advantages. Ideally, comparisons should be made with the leading firms in an industry, and analyses should review performance trends over the past five years to determine whether the business is heading in the right direction or if corrective action is required.

Benefits of Business Analysis

Managers can use business analysis as a guide for important decisions such as business expansions, financing, marketing strategies, operations planning, and product selection. When applied properly, this information can help to increase business profitability, control costs, reduce the risk of business failure, boost employee productivity and job satisfaction, enhance physical efficiency, and improve management professionalism. It can also support the evaluation of costs and returns for individual products to determine a more profitable product mix. Business analysis can assist in identifying some common problems in wholesale plant nurseries such as low output, slow crop growth or poor pricing, excessive costs, waste or overuse, poor cash flow, overcapitalization or undercapitalization, and imbalanced debt structure.

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 2. Alan W. Hodges, coordinator of economic analysis, University of Florida, Gainesville, FL; and John J. Haydu, professor, University of Florida, Central Florida Research and Education Center, Apopka, FL.

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Information for Business Analysis

The starting point for analysis of any business is to collect the best and most recent available information in a reliable manner. The necessary information is typically gathered from financial statements or income tax forms and other company records. A number of accounting conventions may be adopted to standardize the collection of information from different firms and to make possible consistent comparisons among different businesses and over time. Nursery plant inventories are normally valued at wholesale market value, based on average actual prices realized and appropriately discounted for unfinished products. Plant production area should be measured as the net usable growing space within growing beds and fields, and excluding non-productive space in aisles, driveways, and other service areas. The physical quantity of labor used by nurseries may be measured in terms of payroll hours, including production, administrative, sales, and management personnel. Labor is often expressed in terms of fulltime-equivalent (FTE) persons (employees working 52 weeks at 40 hours per week, or 2,080 hours per year). Capital-resources-managed includes both owned and leased assets in land, buildings, and equipment, and working capital in inventories, cash, and accounts receivable. Owned capital in buildings, improvements, and equipment are usually assessed at book value (less depreciation), while leased assets are taken at market value. If the firm is rapidly growing, a representative measure can be taken as an average of values at the beginning and end of the year.

Business Analysis Examples

As an example of the application of business analysis to plant nurseries, this article provides some results from the University of Florida's *Nursery Business Analysis Program*, for a sample of 37 wholesale nursery firms in Florida in 1998. Benchmark results are presented for all firms and for large, small, and highly profitable firms in Table 1. Information was also developed, but not reported here, for Florida nurseries growing different types of plants such as woody ornamentals, flowering plants, and tropical foliage. The complete report may be requested from the authors or viewed online ([http://www.ifas.ufl.edu/~hort\\$/research.htm](http://www.ifas.ufl.edu/~hort$/research.htm)).

Income and Value Produced

Sales and income are obviously the most basic indicators of business scale and success. To evaluate the productivity of a nursery firm, the concept of "value produced" represents the sum of own plant sales plus change in plant inventory value. Own plant sales represent products produced by the firm; the value of brokered products are deducted, since these do not involve the productive resources of the firm. Changes in plant inventory may be a significant factor in nursery enterprises, especially for businesses that are rapidly growing, and should be accounted for in total value of production. Total income includes plant sales, changes in plant inventory values, and miscellaneous income from brokerage services, interest on accounts, rents, etc. Total income for Florida firms averaged \$2.89 million (Table 1).

Cost Efficiency

For effective analysis of costs, it is important that the expenses be identified in meaningful categories. As a general rule, any cost that represents five percent or more of total costs should be itemized. In the *Nursery Business Analysis*, we identify 25 individual expense categories, and group these into seven major categories: management, employee labor, supplies, facility and equipment, administrative overhead, depreciation, and interest. Because the dollar amount of expenses depends upon the size of operation, costs are often expressed on a standardized basis such as a percentage of total costs, or percentage of value produced, in order to make meaningful comparisons for different companies. For example, costs for labor in Florida nurseries averaged 34.7 percent of value produced, and ranged from 39.2 percent for small firms to 26.8 percent for highly profitable firms. The cost per unit of growing space is also a useful measure for estimating individual plant growing costs or comparing cost efficiencies of different production systems. Total costs per square foot of growing area averaged \$1.04 for all Florida nursery firms, but was much lower for highly profitable firms (\$0.64).

Net Returns and Profitability

Net firm income is the difference between total income and total costs, less management and interest costs, and excluding income taxes. Net margin is the net income divided by total income. Return to capital represents profits after management and interest expenses are deducted from net firm income, giving the net returns attributable to the capital investment. This is usually the "bottom line" for financial performance of a company. Rate of return on capital is the return to capital divided by total capital investment (assets owned). Rate of return on net worth is an even more refined measure of profitability, calculated by dividing return to capital by net worth (total assets less liabilities). This measure expresses profitability in relation to the equity of owned assets, and is comparable to annualized yields on stocks, bonds, or savings deposits. For wholesale nurseries in Florida, rate of return on net worth averaged 11.2 percent for all firms and 20.6 percent for highly profitable firms. For Florida firms that provided information since 1990, this profitability indicator has decreased by 24 percent in constant-dollar terms, reflecting the increasingly competitive business environment.

Resource Productivity and Efficiency Indicators

Sometimes financial data alone are not sufficient to analyze operating problems in businesses, and data on physical resources are needed to provide an accurate diagnosis. Indicators of productivity, efficiency, and resource-use intensity express relationships between measures of output and the use of resources for plant production space, labor, and capital.

The productivity of nursery space may be measured in terms of value of production per unit growing area. Value produced per square foot is affected by nursery layout and space utilization efficiency (vacancy) and plant growth rates and survival. For example, value of production for Florida nurseries averaged \$1.18 per square foot, or \$51,000 per acre, and varied widely among industry groups: foliage and floriculture operations had significantly higher values (\$3-\$5) because of their highly intensive production systems, while woody ornamental growers had much lower values (\$0.75).

Plant inventory turnover is a productivity indicator that expresses the rate at which inventory is replaced on an ongoing basis, calculated as the ratio of annual sales to average inventory value. This measure accounts for the inherent value of different nursery crops, and it can be interpreted as the number of "crops" per year. Inventory turnover generally follows a pattern among industry groups similar to that for value produced per square foot, with higher values for floriculture operations and lower values for woody ornamental growers. Low inventory turnover is common for new and rapidly expanding firms because of large inventories of immature plants. For Florida nurseries, turnover averaged 0.77 for all firms, which represents an average growing cycle of 1.3 years.

Labor productivity may be measured in terms of value produced per full-time equivalent worker. This measure is strongly correlated with profitability, but is remarkably consistent across industry groups, regardless of type of production system or plant product. Variations in labor productivity may result from differences in investment for labor-saving equipment, labor management, and practices affecting crop turnover. Value per worker for Florida nurseries averaged \$58,000, and highly profitable firms averaged \$77,000 per worker. The intensity of labor use may be evaluated in terms of ratios between production area and the number of employees. For Florida firms this measure averaged 1.1 acres per FTE. Similarly, capital intensity measures reflect the ratio of total capital managed (owned plus leased) to labor or production space resources. For Florida nurseries, managed capital per FTE employee averaged \$118,000 for all firms, while highly profitable firms averaged \$140,000 per FTE. Capital managed per acre of growing area averaged \$105,000 for all firms, and was significantly lower for highly profitable firms (\$81,000). Floriculture operations typically have substantially higher capital managed per worker and per acre, reflecting their greater mechanization and investment in structures.

Financial Ratios

Numerous ratios among the values on a company's balance sheet express measures of financial solvency and liquidity. Leverage is the ratio of total assets to net worth and is an indicator of long-term solvency, which takes into account the financial risk of the venture. Higher values indicate greater risk, with potential for both greater returns and greater losses. The impact of financial leverage on profitability can be understood as a multiplier (leverage multiplied by the rate of return-to-capital assets equals the rate of return on net worth). Leverage factors below 2.0 are generally considered to represent a very safe financial position. The leverage ratio averaged 1.42 for Florida nursery firms. The quick ratio is a measure of liquidity, or a firm's ability to meet short-term debts. It is calculated by dividing cash and accounts receivable by current liabilities. Cash and accounts receivable are the most liquid of current assets, which are usually available on short notice, but inventories are not included in this measure because they may not be immediately salable. A value for this ratio below 1.0 would indicate an illiquid position. The quick ratio averaged 2.49 for Florida firms.

Conclusion

Business analysis is a valuable tool for improving management and performance of nursery enterprises. A comprehensive review of your company's operations and financial performance should be done at least annually. You can think of this like a checkup with your doctor, except it is the health of your business that is in question.

Table 1. Business analysis indicators for Florida ornamental plant nurseries, 1998.

Indicator	All Firms (n=37)	Large Firms (>\$1 million sales)	Small Firms (< \$500,000 sales)	High Profit Firms (> 15% rate or return to capital)
<i>Scale of Operations and Resources Used</i>				
Total income (\$1,000)	2,894	7,690	392	4,691
Total capital managed (\$1,000)	5,736	15,702	702	9,005
Production area (acres)	54.8	146.9	6.6	111.1
Employees (FTE*)	48.6	121.9	7.3	59.4
<i>Sales and Value Produced</i>				
Own plant sales (\$1,000)	2,411	6,274	258	3,814
Change plant inventory (\$1,000)	395	1,249	30	779
Valued produced (\$1,000)	2,806	7,523	288	4,593
<i>Profitability Indicators</i>				
Net margin (net firm income/total income)	18.9%	19.8%	8.0%	38.5%
Rate of return to capital (return to capital/total assets)	7.9%	8.5%	-2.3%	19.4%
Rate of return on net worth (return to capital/net worth)	11.2%	12.4%	-3.8%	20.6%
<i>Resource Productivity and Efficiency</i>				
Value produced per square foot (\$)	1.18	1.18	1.00	0.95
Value produced per employee (\$1,000/FTE*)	58	62	39	77
Production area per employee (acres/FTE*)	1.1	1.2	0.9	1.9
Capital managed per employee (\$1,000/FTE*)	118	129	96	152
Capital managed per acre (\$1,000)	105	107	106	81
Inventory turnover (annual sales/inventory value)	0.77	0.74	0.78	0.69
<i>Costs as a Share of Value Produced, by Expense Category, and Cost Per Square Foot</i>				
Management or owner salary	4.6%	3.5%	15.9%	5.0%
Labor (salaries, wages, employment taxes, fringe benefits)	34.7%	34.1%	39.2%	26.8%
Supplies (plants and seeds, containers, growing media, fertilizer, chemicals, packaging, heating fuel)	26.1%	25.2%	50.7%	22.7%
Facility and equipment (operation; maintenance; repair of buildings, equipment, vehicles)	5.0%	4.8%	7.0%	3.6%
Overhead (travel, entertainment, insurance, taxes, advertising, telephone, electric, rent, miscellaneous)	10.0%	9.7%	16.0%	7.0%
Depreciation (buildings, equipment)	3.8%	3.9%	8.0%	2.2%
Interest on borrowed capital	3.9%	4.4%	4.4%	0.5%
Total cost per square foot production area (\$)	1.04	1.01	1.41	0.64
<i>Financial Ratios</i>				
Quick ratio (cash and accounts receivable/current liabilities)	2.49	2.63	0.85	7.22
Leverage (total assets/net worth)	1.42	1.47	1.60	1.06
* Fulltime equivalent employee, or 2,080 hours per year.				