

Using an Income Statement in Horticultural Business ¹

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Background

If investors and analysts could examine only one financial statement of a firm in order to see how it was doing, they would probably select the income statement. This statement shows how a firm's output, costs and income have changed over time. It can also indicate how a specific firm is doing compared with similar firms. Balance sheets, cash flows and equity statements are important as well. But their importance does not detract from the usefulness of the income statement. This paper presents an actuarially sound and managerially simple methodology of organizing data in an income statement for a nursery business.

One of the main problems in the nursery industry is the lack of financial uniformity in its reporting. There is inconsistent and occasionally inaccurate financial data presented by nursery firms and by the institutions that use their data. Consequently, it is often impossible to compare one firm with another and difficult to compare an individual firm's financial progress over time as it changes its financial methodology. Sometimes the financial words used in nursery business analysis are incorrect; for example, reporting net income as a pre tax benchmark, when net income is an after tax

number. So this paper attempts to provide some consistent and logical uniformity in producing an income statement.

The concept of uniformity is important. Sometimes a firm or a series of similar firms will present bottom line results where some costs are either overlooked or not shown. This mistake is not uncommon in educational institution publications on their local nursery industry. Most firms and many data users have only a rough idea of the correct numbers to show as profits. Even correctly recorded numbers are classified in different ways. One example is the use of fixed and variable costs, cash and non cash costs and direct and indirect costs, all purporting to show much the same things. Some firms include a specific production cost as a fixed cost and others might include it as a variable cost. A third group might include it as both fixed and variable. Labor is a good example of an input which could be classified in any one of these three methods.

There is nothing fundamentally wrong about doing things in certain unique ways if the results are directed solely to an individual nursery which prefers things that way. But it is difficult if not impossible to transfer these results into a group of other firms and

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see what industrial trends are occurring. As nursery competition increases, the importance of good representative information increases. This paper presents an attempt to unify reporting on an income statement.

The presentation will not use fuzzy concepts like profits. It will rely on financial names that most nurseries will recognize and feel comfortable with. These names are familiar to bankers, financial analysts, educators and others who use financial names and numbers in their work. Consequently it should be possible to use nursery comparisons, either at the firm or industry level, and with other firms and industries both inside and outside agribusiness.

The Income Statement

The income statement reports the firm's output, costs and income over a period of time. There are six main sections in this proposed income statement. Each section links with the next section to provide a financial indicator or benchmark of progress in the firm. These benchmarks are not the only income statement indicators, but are usually among the most useful. The arrangement is illustrated in Table 1 .

The paper will explain each section and illustrate them with some rounded off numbers taken from a small horticultural firm in South Florida.

Section One - Gross Output

Gross output is the firm's sales over the chosen time period, plus or minus the change in input and output inventory, plus any change in receivables. A typical gross output section is shown in Table 2 .

This comparison with the same quarter a year ago provides some useful managerial information. For example, gross output grew by nearly 8% this quarter. Sales increased by around 12%, which is good, but the 25% rise in receivables is probably not. Comparisons are often the most informative data of a firm's progress.

The sales category in the gross output statement shows what the actual cash sales were during that quarter. The two inventory categories refer to outputs and inputs respectively. They show the difference between what was on hand at the start of the period

and what was left at the end of the quarter. For example, if the beginning inventory of items for sale was \$50,000 and the ending inventory was \$60,000, this explains the \$10,000 increase shown in the table. And if the input inventory started the second quarter valued at \$20,000 and the ending inventory was \$15,000, then the above table shows the negative inventory change. Many firms fail because of poor inventory management. This is mainly because there may be too much cash tied up in plants for sale and inputs to produce these plants, meaning that this cash could not be used in more liquid and therefore rewarding resources.

Receivables show what the firm has sold but not received cash for. The larger firms need to categorize these into those receivables outstanding for 30, 60 or 90 days. Receivables prevent cash use and can cause liquidity problems. Other income is a catch-all for items that are not put elsewhere in the gross output account. These items might be investment income, rent, custom work or other things which the firm did to produce income.

Section Two - The Gross Margin Calculation

The gross margin of a firm shows what's left after covering all cash expenses. It is a very useful benchmark for comparisons, either from period to period for the whole firm or for the firm's various enterprises. For example, if one enterprise has a consistently higher gross margin than another enterprise, then other things being equal, the firm should favor the former over the latter enterprise. Gross margin is particularly useful when expressed as an efficiency measure such as per square foot or per labor hour. And it can be used realistically in cross firm comparisons.

Cash cost expenses are the items that the firm pays cash for. They include materials, wages, machinery running costs and all the other cash costs involved in getting the firm's output to the market. They also include cash items which the firm has yet to pay (i.e., payables) and any prepaid cash expenses. Cash costs can, and probably should, be sub divided into convenient categories. This procedure focuses on the percentage changes in each category over time, to give monitoring information for managers. Table 3 provides one feasible cash cost sub division.

The table shows the differences in the cash expenditures between this quarter and the same quarter a year ago. There are some obvious changes which the firm has made to improve its performance. Labor and interest costs are a smaller proportion; materials and sales and advertising are larger.

Subtracting all the cash costs from gross output gives gross margin. Gross margin shows what available to pay all the other costs of the firm, including taxes, owners' salaries and to re-invest in the firm. Table 4 presents some results.

The table shows a couple of ways that gross margin can be used. The firm has improved its quarter's performance over the same quarter last year by nearly 13%. This is mainly due to more sales and a reduction in labour costs. The three main enterprises also show their individual contribution. The next step would be to look at the gross margin of each enterprise with some efficiency measure to see which is the most productive in terms of using cash costs. For example the area gross margin for each enterprise is \$3.20, \$2.67 and \$2.94 respectively. The manager might then question whether to keep the three enterprises in the same proportion or not.

Section Three - The Margin After Direct Costs Calculation

This benchmark shows what's left after all direct costs have been met. Direct costs are made up from the cash costs outlined above plus the depreciation of all the firm's capital assets. These capital assets include machinery and equipment, buildings, irrigation and similar items which have allowable depreciation schedules. It may be simplest to use the schedules published by the US Internal Revenue Service in the annual free copy of "The Farmer's Tax Guide." In any case, the chosen schedules should reflect the economic life of the asset.

Depreciation is as real a cost as paying wages, though it is often not so obvious until an asset has to be replaced. Many small firms either ignore or only casually calculate this cost. But if it is not done with some accuracy, then the firm's returns will not show whether they are living off depreciation or not. Subsidising living with depreciation can be done

from time to time in lean spells, but the manager should be aware that it is occurring.

Subtracting depreciation from the gross margin produces the margin after direct costs. This margin must meet the firm's overhead, the owners' salaries, income taxes and social security and firm re-investment. Thus a series of this benchmark over time provides information on how the benchmark itself is changing, the proportion of direct costs taken up by depreciation, and consequently, whether it is advisable to replace aging assets. The benchmark is also useful for comparative purposes between firms and for dissimilar firms if comparisons using similar efficiency measures are used. Table 5 provides some relevant data.

The table shows that depreciation is a little less than the same quarter last year, as the capital assets continue to depreciate and are not being replaced. The enterprises share of this depreciation appears to be prorated, and indicates that enterprise #1 has an 82% margin after direct costs (i. e., $41 \times 100 / 50$), while the other two show 80% each.

Section Four - The Net Firm Income Calculation

Net firm income is the firm's pre-tax income. This benchmark shows what is left after all the costs of the firm are deducted, except the owners' income taxes and personal social security obligations. Net firm income shows what is left to pay these taxes, owners' salaries and to re-invest in the firm. It is calculated by subtracting overhead costs from the margin after direct costs.

Many firms do not separate overhead costs from their cash and depreciation costs. Admittedly, all overhead costs can be put into either or both of these categories. However as a firm grows there may be a temptation to increase overhead expenditures, sometimes to the detriment of the firm. Therefore it is preferable to have a separate overhead category rather than amalgamate it with the other two.

Overhead costs are not as easy to define as cash and depreciation costs are. They are sometimes referenced as indirect costs in that they do not directly influence production as labor (a cash cost) and

machinery (a depreciation cost) do. Overhead costs usually include items like office expenses such as utilities, stationary, accountant and attorney fees, office equipment depreciation, business use of a car, client entertainment, educational seminars, business publications, dues and travel. The decision of what constitutes overhead is perhaps best left to the individual firm. The main thrust here is to emphasize the importance of treating overhead as a separate category.

The reason for this thrust is that overhead can often grow alarmingly over time. Obviously, as a firm grows and prospers, overhead items like office equipment, entertainment and travel tend to grow as well. This growth is fine as long as the overhead category does not become an increasingly larger proportion of total costs. But experience shows that it too often does and firms find themselves spending cash on essentially nonproductive items when this cash is needed elsewhere in the firm.

Net firm income shows the firm's taxable income. It is the firm's earnings before tax. If this taxable level seems too high, then it might be the right time to replace some assets and use the subsequent depreciation to reduce taxable income. Conversely, if net firm income looks comparatively low, then analysis should show whether the cause lies in one or more of the three cost categories or in the gross output statement. Finally net firm income also indicates how much the owners can withdraw (or already have withdrawn) as salaries and leave enough remaining to re-invest in the firm.

Table 6 shows that the present quarter is better than the same quarter a year ago. Net firm income has grown by almost 28%. But overhead has expanded by one third. This is a warning sign for the manager to see whether this expansion can be justified or not.

Section Five - The Net Income to Owners Calculation

Net income is the real bottom line of a firm. It is the after tax earnings of the firm. It is calculated by subtracting the owners' income taxes, corporate income taxes and social security payments from the net firm income. If the firm is a corporation then any dividends are paid as cash from post tax net income.

Some corporations can deduct the owners' social security as a cash cost. Some can deduct part or all of owners' salaries as cash costs. In any case, the emphasis here is that only owners are relevant in this sector. All other workers' taxes and social security are handled as cash cost items.

Net income is the firm's after tax income for rewarding the owners and for re-investment. It is the best benchmark to show how well a firm is doing. It can be used to track the firm's progress over time and to compare it with similar firms. Analysts, investors, bankers and managers rate this benchmark very highly indeed. Consequently, it is vital that it is recorded and reported correctly.

Net income allocation probably reflects the firm's management more than any other benchmark in that this is where the tough decisions are made. Perhaps the hardest one is how much to pay oneself for owning and running the firm. Obviously, the more that the owners take out as salary the smaller the amount remaining to re-invest in the firm. The less the salary the greater the family sacrifice for the firm.

Table 7 presents the net income growth of ABC in the second quarter over the last three years. It has grown 37% over the period; 8% in the previous year and 27% during the past year. This is a healthy expansion and it appears to be accelerating. This is apparently due to a sales expansion combined with cash cost containment. But the depreciation signals that some capital investment may be required in the near future. The capacity for capital investment is indicated by the retained earnings.

Section Six - The Retained Earnings Calculation

This benchmark shows what remains after meeting the owners' salaries. It essentially shows what the firm has done in a specific time period in re-investing in the firm. Re-investment is done by obtaining assets through purchase or principal payments (the more principal is paid off the greater the firm's ownership in the asset). The two words "has done" is crucial. Retained earnings are rarely a lump sum that is available for re-investment at the end of a period. Rather, retained earnings show how

the firm invested in itself over the time period represented by the income statement.

Retained earnings usually show what was spent on buying new assets, improving old ones, increasing ownership in debt financed assets and increasing cash reserves. Suppose for example, a firm's second quarter retained earnings were shown in the income statement as \$100,000 on June 30. During this quarter the firm bought a trailer (a capital asset), improved an existing irrigation system (another capital asset), paid off some principal and deposited cash in a money market account. These capital asset investments and the deposits represent the \$100,000.

Conclusions

The above methodology indicated what might be achieved with inter- and intra- firm comparisons if some form of uniform system is adopted. This paper only covers the income statement and illustrates only a few of the possible analyses within the given framework. The example was included for verisimilitude. Much of the actual information was left out to emphasize the main items. Hopefully this paper will continue a process of uniformity and accuracy in financial recording and analysis in horticulture. It is hard to think of another business where it is needed more.

References

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Table 1. The six sections and benchmarks of a workable income statement.

Section number	Section calculation	Benchmark
1	gross output	gross output
2	gross output - cash costs	gross margin
3	gross margin - depreciation	margin after direct costs
4	margin after direct costs - overhead costs	net firm income
5	net firm income - owners' taxes and social security	net income to owners
6	net income to owners - owners' salaries	retained earnings

Table 2. The Gross Output Section for Firm ABC, with comparisons (\$).

Item	Quarter	Quarter Last Year
sales	200,000	180,000
inventory for sale (change)	10,000	3,000
inventory: inputs (change)	(5,000)	1,000
receivables (change)	16,000	13,000
other income	4,000	12,000
gross output	225,000	209,000

Table 3. Summary of cash costs for Firm ABC, with comparisons.

Cash Cost Category	\$ Cost	Percent now	Percent year ago
materials	30,000	25	19
production equipment	10,000	8	8
transportation, insurance, & handling	5,000	4	2

Table 3. Summary of cash costs for Firm ABC, with comparisons.

Cash Cost Category	\$ Cost	Percent now	Percent year ago
labor	50,000	42	50
interest	15,000	13	16
sales and advertising	10,000	8	5
Total	120,000	100	100

Table 4. Gross margin firm and enterprise data for ABC.

Item	This Quarter	Last Year	Enterprise 1	Enterprise 2	Enterprise 3
gross margin	\$105,000	\$88,000	\$50,000	\$30,000	\$25,000
gross margin \$ / m squared			3.20	2.67	2.94

Table 5. Gross margin, depreciation, and margin after direct costs, or MADC, for ABC (\$'000).

Item	Quarter	Last Year	Enterprise 1	Enterprise 2	Enterprise 3
Gross margin	105	88	50	30	25
Depreciation	20	22	9	6	5
MADC	85	66	41	24	20

Table 6. Gross output, sector costs, and net firm income for ABC (\$'000).

Item	Quarter	Last Year
Gross output	225	209
Cash costs	120	121
Depreciation	20	22
Overhead	20	15
Total costs	160	158

Table 7. The net income of ABC compared with previous performances (\$'000).

Item	Quarter	Last Year	Two Years Ago
net firm income	65	51	47
income tax + SS	13	10	9
net income	52	41	38