Revised April 2003 **Agdex 811-6**

Profitability:

Will it Make Money?

Ag-Alternatives is a series of factsheets designed to help you evaluate the feasibility of a new agricultural or rural based business. Worksheets in each factsheet help you personalize the information.

Profitability is the measure of the return your business creates after operating costs and other expenses are subtracted from income. Determining profitability may be the most challenging, yet rewarding, part of evaluating a new agriculture enterprise.

This factsheet introduces farm management tools to help you answer specific questions about the profitability of a proposed business. The income statement and sensitivity analysis help you answer the question: Will establishing this new enterprise make money?

Income Statement

An income statement measures profitability by recording the costs of production and value of production for a set period of time, usually a year. The income statement lists all business receipts (cash and non-cash payments received from the sale of goods or services or other sources) and expenses (operating expenses and depreciation) related to the year's production. Expenses are then subtracted from receipts. The amount remaining is net income**.** Income statements for established businesses are usually completed at the end of each business year. What you will be working on in this factsheet is a projected income statement.

Net income is the net earnings of the business for a particular year. Net income can be thought of as the return from the operator's labour and management time, unpaid family labour and equity capital.

If you prepare an annual income statement, you can assess the progress of your business. When you apply for financing, the income statement becomes an indispensable part of your business plan or loan proposal. The income statement may also help you or an accountant prepare your tax forms.

The income statement for most businesses is quite simple and easy to prepare if you've done some cash flow projections. The factsheet *Ag-Alternatives: Financial Feasibility* (Agdex 811-3) includes information on cash flow projections. Use *Worksheet 1: Projected Income Statement* at the end of this factsheet to complete an income statement for your proposed business. Here's an example of an income statement for Country Jam Company.

Alberta
AGRICULTURE, FOOD AND RURAL DEVELOPMENT

Country Jam Co.
Projected Income Statement
for the Year Ending December 31, 2002

Income	
Jam sales	$72,000
GST rebates	$1,000
Total receipts	**$73,000**
Expenses	
Raw fruit purchased	$10,000
Sugar and other ingredients	$6,000
Jars and labels	$7,000
Shipping costs	$4,000
Vehicle expenses	$8,000
Repairs and maintenance	$1,000
Wages	$16,000
CPP, EI, Workers' compensation	$2,000
Advertising	$3,000
Office expenses	$1,000
Electricity	$3,000
Telephone	$1,000
Insurance	$2,000
Interest – operating line of credit – intermediate loans – mortgage	$500 $1250 $1250
Property taxes	$1,000
Total Expenses	**$68,000**
Net Income	**$5,000**

Note: These numbers are for example purposes only. They are not intended to reflect expected costs and returns for this type of business.

The Link Between Profit and Growth in Equity

After its first year, The Country Jam Co. made a profit of $5,000 on its income statement. What happens to this amount now? Where does it go?

If the owner withdraws the profits to pay for family living needs or personal wants, this money leaves the business. However, if the owner decides to not take profits from the business, this money remains in the business as retained earnings. Retained earnings is an owners' equity item. It will increase the equity in the business. This is shown by the Country Jam Co. balance sheet for their first year-end (see below).

A net loss will decrease the owner's equity by the amount of the loss. When a start-up venture has limited equity, a couple of years of losses can quickly wipe out all the equity in the business. A sample balance sheet is included as Worksheet 2. Complete a balance sheet for your proposed business.

Country Jam Co.
Balance Sheet
as of December 31, 2002

Assets	
Current Assets	
Cash on hand	1,500
Accounts receivable	2,500
Inventory – finished product – supplies	8,000 5,000
Total Current Assets	**17,000**
Intermediate Assets	
Pots and kitchen utensils	3,000
Walk-in cooler	8,000
Delivery van	15,000
Total Intermediate Assets	**26,000**
Fixed Assets	
Building	22,000
Land	10,000
Total Fixed Assets	**32,000**
Total Assets	**75,000**

Liabilities	
Current Liabilities	
Accounts payable	4,500
Credit cards	2,000
Operating line of credit	3,500
Total Current Liabilities	**10,000**
Intermediate Liabilities	
Cooler loan (grandma)	5,000
Van loan (bank)	10,000
Total Intermediate Liabilities	**15,000**
Long-term Liabilities	15,000
Total long-term Liabilities	**15,000**
Total Liabilities	**40,000**
Owner's Equity	
Contributed capital	30,000
Retained earnings	5,000
Total Equity	**35,000**
Total Liability and Equity	**75,000**

From this example you can see that the owner's equity is made up of two parts - the capital they contributed to the business and the earnings (profits) they left in the business. Most new ventures find it difficult to borrow more money. Thus, these retained earnings are essential for financing any further growth of the business.

Steps to Estimating Income

Income is the payment you receive in exchange for your goods and services. Follow these steps to ensure you include all sources of income.

Step 1: Estimate What Your Goods and Services Will Earn

To estimate the value of your sales include the size of business you plan to operate, your production rate and the price you will receive. An example is shown below.

Example:

- Determine the size of the current operation for the base year such as the typical number of crop acres in production, herd size or amount of greenhouse space utilized in the recent past.
- Determine your current average production rate such as average yield per acre or number of flats per square foot of greenhouse.
- Multiply these two numbers to obtain typical volume:
  Business size x production rate = volume
  3 acres of cabbage x 10 tons/acre = 30 tons cabbage
- Select price data that represents typical current prices. Don't use the highest or lowest price you've received.
- Next, using the volume you calculated and the price you decided on, calculate receipts for the operation.
  30 tons cabbage x $140/ton = $4,200

Step 2: Adjust for Changes in Accounts Receivable

If you are owed money for products sold in the year of the income statement, the amount owed should be listed as an account receivable. If you were paid for goods produced or services performed the previous year, the amount should not be included on this year's income statement but should have been included on the previous year's statement.

Step 3: Adjust for Changes in Production Inventory

Compare your inventory at the beginning of the year with inventory at the end of the year and adjust the income statement to allow for the change.

The Allens estimate that they will have five tons of cabbage at the end of the year. At $140 per ton, this cabbage will have a value of $700.

Step 4: Estimate Future Year Receipts

To analyse profitability of the new enterprise over time, you can develop a series of income statements for future years. Take the time to research what future prices for your goods could be.

Steps to Estimating Expenses

Although the list of expenses is much longer than the list of receipts, the procedure for estimating expenses is similar. Follow the steps listed below to ensure you include all expenses.

Step 1: Estimate What it Will Cost to Produce Your Goods and Services

Include operating expenses and depreciation. Operating expenses include variable and fixed costs. Variable costs change with the level of production and include seed, labour and number of jars. Fixed costs do not change with the level of production. Examples of fixed costs include insurance, taxes and salaried labour. Depreciation is a non-cash expense and is defined as the wear-out, decay or obsolescence that accrues every year on capital items such as machinery, buildings or fences. Annual depreciation is the portion of the cost of an item that is charged to a particular year.

Step 2: Adjust for Accounts Payable

If you owe a supplier for purchases made in the year of the income statement include the debt in the expense section. If you paid bills for items purchased for the year before, do not include the amount on the income statement.

Step 3: Account for Changes in Inventory

Count your inventory of supplies such as jars, fertilizer, seed and labels. Charge the cost for these supplies to the year in which they are used, not the year you bought them. For example, if you purchased one ton of sugar, but used 600 lb. to make jam, you should charge 600 lb. to last year's income statement.

Step 4: Calculate Labour Expenses

Do not include an expense for unpaid family labour in the business. If you pay employees, list your salary costs and employee benefit costs such as health insurance, unemployment insurance and Canada Pension Plan.

Step 5: Include Marketing Expenses

Research how much it costs to promote your business, haul your product to the customer and pay any marketing levies required by supply managed commodities.

Step 6: Assess the Business Share of Shared Costs

When the family and business use the same items such as a telephone, truck or utilities, you need to separate the business share from the total cost.

Step 7: Estimate Future Expenses

If you plan to assess profitability of the enterprise in the future, you need to prepare a series of income statements. You need to research how costs of inputs and fixed costs, like insurance, could change in the future. Talk to suppliers about future costs and the typical usage rates of various inputs. It's best to estimate supply increases as a percentage for each year.

Example:

The Allens' estimated fertilizer prices for their cabbage crop would increase by three per cent per year, but pesticide costs would remain the same.

Completing the Income Statement

When you have entered all necessary information on the income statement, total both the income and expenses and enter the subtotals for each column at the bottom of each section. Next, subtract the expenses from the receipts in each column and enter the total in the bottom row of the statement. This value is the net income for the new enterprise.

Sensitivity Analysis

You may have doubts about the validity of the net farm income values calculated on the income statement if you had trouble obtaining good data or are unsure of important projections. Since farmers always operate in an environment in which weather, interest rates, prices, costs and other factors vary, you may be justifiably suspicious of an analysis that relies on expected values. To measure the impact that changes in any factor (yields, prices, sales, etc.) will have on net farm income, perform a sensitivity analysis of the data. You may identify the one factor that, if changed from the expected value, affects profitability the most. A sensitivity analysis will increase your confidence in profitability projections.

To perform a sensitivity analysis, select one factor, such as yield, price, number of visitors per year or sales, to analyse. Then, select a different but possible value for that factor and adjust any related figures. You want to select at least three different values for these factors; a most likely to happen value, an optimistic value and a worst-case value. To complete the analysis, recalculate net farm income.

Note: This analysis can be done quite easily with a computer and a spreadsheet software program.

Example:

The County Jam Co. decided to perform a sensitivity analysis on price. For the worst-case scenario they examined the effect of a $.50 /jar drop in price. If the price dropped by $.50, the jam sales figure goes from $72,000 to $68,000. There's no change in the expenses section as the cost for inputs such as fruit, sugar, jars and shipping do not change. The net effect of this change means a reduction in net farm income of $4,000. The enterprise has a $1,000 profit instead of a $5,000 profit if jam prices drop by $.50/jar.

If you decide to do a sensitivity analysis on a factor like yield for a flower or vegetable operation, you need to consider how costs change. Costs, which might be reduced by lower yields, include packing boxes or bags, rented storage, transportation and other marketing expenses. Inputs such as fertilizers and pest control materials probably won't be reduced. On the other hand, a sensitivity analysis to explore the effect of higher yields would affect marketing costs because there is more product to sell. If you are considering the effect of lowered inputs such as fuel for greenhouses, fertilizers for crops or feed for animals, consider how quality or volume might decrease with each change.

When the sensitivity analysis is complete, evaluate the revised income statement.

It Shows a Profit, but is Your New Venture Worthwhile?

You now know if your new enterprise is expected to show a profit and in what year of operation it will happen. But is this profit large enough to give you a good return on the money and effort you have to put into the business? And how can you compare two different business opportunities? There are several methods of analysing business and investment opportunities. These include payback period, net present value and average rate of return on investment. They are beyond the scope of the Ag-Alternatives series. If you would like assistance in analysing business and investment opportunities, talk to an Alberta Agriculture, Food and Rural Development specialist.

Summary

An income statement helps you determine if your new enterprise idea will be profitable. An income statement lists receipts and expenses. Using these numbers you calculate a value for net income. Net income is a measure of profitability and represents the return for the operator's labour, management time, unpaid family labour and equity capital.

You can also use the income statement to perform a sensitivity analysis. What effect do changes in price and yields have on profitability? By completing this financial analysis on your proposed business you'll have information needed to make a decision. Depending on the complexity and size of your proposed business, you may want to do further financial analysis.

Reference

The Ag-Alternatives factsheets have been adapted with permission from: *Farming Alternatives – A Guide to Evaluating the Feasibility of new Farm-Based Enterprises* (NRAES-32, October 1988, ISBN 0-935817-14-X). This publication was a project of the Farming Alternatives Program, Cornell University, Warren Hall, Ithaca, NY 14853 (607) 255-9832; and Natural Resource, Agriculture and Engineering Service (NRAES), Cornell University, 152 Riley-Robb Hall, Ithaca, New York (607) 255-7654.

For More Information

Ag-Alternatives Series:

Personal and Family Considerations: Where do You Want to Be?(Agdex 1834-10)

Identifying Alternatives: What are the Possibilities? (Agdex 811-2)

Marketing: Will it Sell? (Agdex 848-5)

Production Requirements: Do You Have the Resources? (Agdex 811-4)

Financial Feasibility: Can You Afford to Do It? (Agdex 811-3)

Profitability: Will it Make Money? (Agdex 811-6)

Decision Making: Will You Start a New Enterprise? (Agdex 811-5)

For these factsheets and other publications, call Alberta Agriculture, Food and Rural Development's Publications Office at 1-800-292-5697.

Websites:

Alberta Agriculture, Food and Rural Development's website at http://www.agric.gov.ab.ca

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To access specialists, information and services within Alberta Agriculture, Food and Rural Development, contact the Alberta Ag-Info Centre at 1-866-882-7677.

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Worksheet 1: Projected Income Statement

	Year 1 Start-up Year	Year 2	Average Future Year
Income			
Product sales			
Total Receipts			
Expenses			
Shipping costs			
Vehicle expenses			
Repairs/maintenance			
Wages			
CPP/employment insurance			
Marketing			
Office expenses			
Electricity			
Telephone			
Insurance			
Interest – operating line of credit – intermediate loans – mortgage			
Property taxes			
Total Expenses			
Net Income			

Worksheet 2: Balance Sheet

Assests		**Liabilities**	
Current Assests		**Current Liabilities**	
Cash on hand		Accounts payable	
Accounts receivable		Credit cards	
Inventory – finished product – supplies		Operating line of credit	
Total Current Assests		**Total Current Liabilities**	
Intermediate Assets		**Intermediate Liabilities**	
		Total Intermediate Liabilities	
Total Intermediate Assets		**Long-term Liabilities**	
		Total Long-term Liabilities	
		Total Liabilities	
Fixed Assest		**Owners's Equity**	
		Contributed capital	
		Retained earnings	
Total Fixed Assest		**Total Equity**	
Total Assets		**Total Liability and Equity**	