

Enterprise Budget User Guide

An Accompanying Guide to the Southwest British Columbia Small-Scale Farm Enterprise Budgets



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This user guide supplements Institute for Sustainable Food Systems small-scale farm enterprise budget publications. It is intended to help enterprise budget users understand pertinent financial and business management terminology used and to effectively use these budgets to improve farm financial planning and business management.

Enterprise budgets do not represent any particular farm. Instead, they represent usual farm occurrence and are intended to be used as standardized guides for evaluating costs and returns. Using the enterprise budget as a guide, each farmer can input their own cost expenditures and revenue projections to estimate the profitability of each crop or livestock enterprise on their farm. This farm business management exercise allows farmers to better make crop production and farm business management decisions to minimize inefficiencies and increase profitable production.

What is an enterprise budget?

An enterprise budget projects the costs and returns of growing and selling a particular crop or livestock over a period of time. It comprises of a simple listing of income and expenses, based on a set of assumptions. An enterprise budget is a physical plan because it indicates the types and quantities of production inputs and output; as well as a financial plan because it assigns costs to all inputs used in producing the enterprise.

Components of an enterprise budget:

The concept behind an enterprise budget is simple, net return is total revenue derived from selling a product minus total cost of producing and selling it. An enterprise budget has three components: revenue, variable costs, and fixed costs.

Revenue: is the total income expected to be generated from selling the total yield or product of a single farm enterprise for a specific period of time. Revenue is calculated by multiplying the quantity of the product by the per unit selling price.

Variable Costs: are costs associated with inputs of production that change with the level of production. In other words, in order to increase production, more resources, such as seeds, labour, composted manure, or livestock feed are required, which in turn means an increase in costs to the farm. In ISFS enterprise budgets, variable costs are categorized into material costs, operational costs and miscellaneous costs. Material costs are related to inputs usually used up on an annual basis, and are subcategorized into seeds/transplants, fertilizers soil amendments, and other materials. Operational activities require labour and take up equipment time, and are subcategorized into pre-harvesting activities such as land preparation, planting, pest management, irrigating, and post- harvesting activities such as harvesting, washing etc.

- *Seeds and Plants:* includes the total quantity, per unit price and unit of measurement of seeds, transplants used during the whole season.
- *Fertility and Nutrients:* specifies the type, amount and price per unit of fertilizers, composts, manures and other soil enhancement and fertility management materials applied during the whole season.
- *Other Materials:* identifies the quantity and cost of other materials, not included in the above categories, that are applied on an annual basis, such as propagation supplies, pesticides etc.
- *Operational activities:* labour cost for each operational activity is the total labour hours used during the season multiplied by the wage rate per hour. For the purpose of assigning different wage rates, labour activities are categorized into regular labour and operator labour depending on who is anticipated required to carry out a farming activity. For example, labour time spent plowing farmland using a tractor is categorized under operator labour. On the other hand labour activities, which do not require machinery or complex equipment, such as planting seeds, weeding and harvesting are categorized under regular labour. For each operational activity, budgets specify the number of hours spent to complete the activity, the type of labour (regular or operator labour) and the respective wage rate.
- *Fuel cost:* an estimate of the average total fuel expenses spent for the season. If machine hours are known, then fuel consumption should be estimated by multiplying the total machine hours for the whole season by the per hour fuel consumption (liters) rate of the machine and the per liter price of fuel.
- *Repairs and maintenance (R&M):* is estimated using the farmer's record of previous repair and maintenance expenditures for each of the fixed assets used in the farm.
- *Interest on working capital:* in farming, factors of production are purchased before a crop or livestock product is produced and sold in the market. In other words, money will be required early on because income is not generated until after the product is sold in the market. The farmer will have to use their own capital or borrow money. The cost of using this capital is referred to as 'interest on working capital'. Interest on working capital is estimated by multiplying the current borrowing interest rate by the total variable cost (except marketing cost). The outcome is then multiplied by the time period, from the beginning of planting to harvesting (crop growing months/12 months), during which the interest payment will remain outstanding. For a livestock product, interest on working capital is calculated for the whole year; therefore, the latter calculation is not required.

Interest on working capital for crop and livestock enterprises can be calculated using the following formulas:

Interest on working capital for crop

$$= (\text{current interest rate})(\text{total variable cost} - \text{marketing cost}) \left(\frac{\text{growing period in months}}{12} \right)$$

and

Interest on working capital for livestock

$$= (\text{current interest rate})(\text{total variable cost} - \text{marketing cost})$$

Fixed Costs: are associated with longer term investment such as buying machinery, building, and land, which do not change as the level of production changes in the short run. For example, in the short run, one can increase production within a set of already existing land, building and machinery, which means the average fixed cost will remain the same. With fixed assets the cost is already incurred even if there is zero production.

Often times annual fixed cost is overlooked in a farmer's annual budget calculation. However, any financial statement that does not include annual fixed costs is an underestimate of the real cost of growing a crop or producing a livestock product. Fixed assets are different from variable inputs in that fixed assets have a useful life of more than a year. In preparing annual budgets or financial statements, fixed cost, unlike variable costs, should be amortized. In other words, the total cost of a fixed asset should be distributed throughout its useful life. Annual fixed cost must be estimated for each fixed asset used in the farm. Annual fixed cost is the summation of depreciation expense and interest expense. Depreciation measures the loss of value of a fixed asset over time, which is an expense deducted annually for wear and tear and obsolescence. Interest expense takes into account the cost of capital used in financing the fixed asset. If the asset was purchased using one's own capital, then the interest expense is a measure of the forgone income that could have been earned by investing the capital in other ways, such as in buying bonds.

There are various methods for estimating depreciation expenses. For the purpose of preparing enterprise budgets, using a straight-line depreciation method is sufficient. For tax preparation, Canada Revenue Agency allows the use of other methods such as the double declining method, which increases depreciation expense as the asset ages.

To estimate depreciation expense, using the straight-line depreciation method, the following information is required:

1. The current value of the asset or its original purchase price adjusted for inflation
2. The estimated salvage (trade-in) value of the asset
3. The expected useful life of the asset in number of years

The depreciation and interest expense can be calculated using the following two formulas:

$$\text{Depreciation Expense} = \frac{\text{Cost of asset} - \text{Trade in value of asset}}{\text{Useful life of asset in years}}$$

$$\text{Interest Expense} = \text{interest rate} \times \left(\frac{\text{Cost of asset} + \text{Trade in value of asset}}{2} \right)$$

Finally, the annual cost of a fixed asset is defined as:

$$\text{Annual cost of fixed asset} = \text{asset depreciation expense} + \text{asset interest expenses}$$

Allocation of annual fixed cost between various enterprises:

Farms that engage in small-scale, human intensive, low input production methods for alternative markets tend to grow a mix of crops. Most fixed assets are shared between these crops cultivated within a single farm. Therefore, once annual fixed cost is estimated for a fixed asset, such as a tractor, the cost then needs to be allocated between the various farm enterprises that require its use. The best method of assigning that cost to each enterprise on the farm is to use the percentage use-time of the asset for each crop. For example, if a tractor (\$1,000 annual cost) runs for five hours annually in 5 acres of cultivated farm land, of which 1 hour is spent on 1 acre of carrots, then the percentage use-time of the tractor in carrots is, $(1 \text{ hour} / 5 \text{ hours}) \times 100 = 20\%$. Then the annual fixed cost for carrots is 20% of \$1000, or \$200.

However, it can be difficult to track or estimate the use-time of each fixed asset as used in each enterprise on a diversified farm. In the absence of such information, an alternative method based on the crop's percentage share of cultivated farmland is used. Using the same example of the tractor, the carrot's share of cultivated farmland is, $(1 \text{ acre} / 5 \text{ acres}) \times 100 = 20\%$. In this case, the annual fixed cost for carrots gives the same result, $20\% * \$1000 = \200 .

Using ISFS enterprise budgets for management of your own farm operation:

On the ISFS website, you will find enterprise budgets, for numerous crop and livestock products, which you can download and use for projecting profitability of enterprises on your farm and managing your farm business. Each budget is prepared in PDF and spreadsheet formats. In what follows, we will discuss how to use/tailor the budgets for your needs.

Static budgets: In tailoring the static budgets to your need, you can manually enter your own estimates in the column titled "your column". Simply enter your own cost estimate for each item (component) in the budget. Use a calculator to make summations and deductions. Enterprise budgets for hops, rhubarb and honeybee are available in static spreadsheet format only.

Dynamic budgets: Enterprise budgets for twenty vegetables, lamb, meat goat, and hog are prepared in both static PDF and dynamic spreadsheet formats. The interactive dynamic Microsoft Excel spreadsheet allows you to enter your own inputs, and Excel performs all calculations for you. All yellow shaded cells are adjustable, in which you can enter your own

number. However, all green shaded cells contain built-in formulas that should not be altered. Gray shaded cells are either summation or titles, and also should not be altered.

Livestock products: the dynamic spreadsheet contains three worksheets: fixed cost, variable cost and analysis. Enter your own values in the yellow shaded cells next to the item under consideration. Values in green shaded cells will be automatically calculated. Once you complete your changes in the yellow shaded cells, new figures for net returns will be calculated.

Vegetables: Each vegetable enterprise budget contains eight worksheets (description, enterprise budget output, fixed cost and overhead charges, variable cost-materials, variable cost-operational activities, marketing fees, revenue and analysis).

Fixed cost and overhead charges: This worksheet records fixed asset information such as purchase price, trade-in value and useful life. All yellow and light yellow shaded cells are adjustable, in which you can enter your own values. For each fixed asset, you need to determine the percentage use-time for each crop under consideration. If you know your own assets usage time (percentage), enter value under the column, "estimated fixed asset use". Excel spreadsheet will calculate the crop's share of annual fixed cost based on your estimate. If you do not have an estimate of the asset's usage time, then Excel spreadsheet will use the crop's share of cultivated farmland approach. First you need to determine the usage area of the asset. Under the column, "fixed asset use area", select from the drop down list. Finally, enter your estimate for repairs and maintenance and insurance in their respective columns.