

Partial Budgeting

Partial budgeting is used to estimate the impact a proposed change will have on farm profits, when the change affects only part of the business. It is not suitable for whole farm planning. Examples of options that can be analyzed using a partial budget include:

- buying versus leasing or custom hiring machinery and equipment;
- purchasing additional land, buildings or quota.

Economic analysis

The partial budget should only include revenues and costs that will actually change if the proposal is implemented. If the change utilizes resources already on the farm (e.g. cows, equipment, surplus labour) then no added fixed costs will be incurred although variable costs (e.g. feed, fuel, wages) may increase and therefore must be included in the budget.

An example partial budget to determine the impact of a quota purchase is shown below. Economic

advantages (added revenue and reduced costs) are weighed against disadvantages (added costs and reduced revenue) to estimate the overall change in annual farm profit. Here are some guidelines for determining what revenues and costs to consider:

Revenues – Under added revenue, consider only the added value of production or revenue expected from the proposed change. Do not include income from the sale of capital assets. Revenue may be reduced if the change eliminates an enterprise, reduces the size of an enterprise or lowers production.

Costs – Include variable and fixed costs. Variable costs may include additional interest charges associated with an operating loan. Do not include the purchase price of machinery, equipment, buildings, land or quota as a variable cost. These are accounted for through depreciation and interest. Under added costs you should also include the additional income tax you might pay on added revenue. The eligible

capital expenditure deduction you claim for the quota purchase should be included in reduced costs.

Depreciation of capital assets can be calculated on the straight line method. It is common practice to depreciate buildings over 20 years; farm machinery over 10 years with a salvage value equal to 10% of the original cost. In the example on the left, quota is depreciated over 20 years (5% per year). This brings into the analysis the risk that trade liberalization might erode quota values.

Investment costs are a measure of the value of the money tied up in a capital asset. The cost can be equated to the interest

Partial Budget - Economic Analysis	
Proposed change: Purchase 1,000 kg of Total Production Quota to reduce over-quota production. At a fat test of 3.7 kg/hl, this will allow an additional $(1000 \div 3.7 =)$ 270 hl to be shipped annually. Projected protein test is 3.25 kg/hl; other solids is 5.6 kg/hl; current TPQ price is \$57/kg.	
Advantages	Disadvantages
Added Revenue fat: $1000 \text{ kg} \times \$4.50/\text{kg} = \$4,500$ protein: $270 \text{ hl} \times 3.25 \text{ kg/hl} \times \$9.70/\text{kg} = \$8,512$ other solids: $270 \text{ hl} \times 5.6 \text{ kg/hl} \times \$1.36/\text{kg} = \$2,056$ CDC subsidy: $1,000 \text{ kg} \times \$0.422/\text{kg} \times 95\% \times 45.67\% = \183 Reduced Costs Variable Fixed Depreciation Investment	Added Costs Variable Fixed Depreciation (quota value declines) $1,000 \text{ kg} \times \$57/\text{kg} \times 5\% = \$2,850$ Investment (value of money) $1,000 \text{ kg} \times \$57/\text{kg} \times 8\% = \$4,560$ Reduced Revenue excess production: $270 \text{ hl} \times \$10/\text{hl} = \$2,700$ (\$10/hl anticipated value of class 4m)
Total Advantages (A): \$15,251	Total Disadvantages (B): \$10,110
Estimated Change in Annual Farm Profit (A-B): \$5,141	

cost on borrowed money. When funds are transferred from savings or another investment, the cost is the value of the lost opportunity for that investment to continue yielding a return.

Impact on cash flow

An economic analysis tells you whether your proposed change will improve profitability. But before implementing the change, you should look at how it will affect the operation’s cash flow. This can be done by using a partial budget cash flow analysis (below).

In considering cash inflows and outflows, remember that depreciation is a not a cash cost so it is not included in the partial cash flow budget. Investment cost is also removed but it is replaced with a loan payment if credit is involved. Loan payments can be estimated using amortization factors, as shown in the side-bar on the right. The bottom line is *net cash flow* – the residual left over to cover depreciation, investment and labour costs. Remember that the cash outflow used to pay down the quotal loan will disappear at the end of the repayment period.

Consider alternatives

Additional partial budgets should be calculated to estimate the impact of alternatives to the proposed change. For example, what would be the impact on profitability and cash flow if the milking herd was reduced by 3 cows to eliminate the excess production? How would lowering production per cow by feeding more forage and less concentrate affect profitability and cash flow?

source: Lawrence Hurd, B.C.
Ministry of Agriculture and Food

Amortization factors

The amortization factors in the table below are used to estimate the monthly payment required to pay off a \$1,000 loan. Locate the repayment period (years) in the leftmost column and the interest rate along the top. The monthly payment is given where the year row intersects the interest rate column. For example, to repay a \$1,000 loan over 7 years at a 9% annual interest rate, 84 equal monthly payments of \$16.09 are required.

Years	Annual Interest Rate (%)			
	7	8	9	10
monthly payment per \$1,000 of loan				
3	30.88	31.34	31.80	32.27
5	19.80	20.28	20.76	21.25
7	15.09	15.59	16.09	16.60
9	12.51	13.02	13.54	14.08
11	10.88	11.42	11.96	12.52
13	9.78	10.33	10.90	11.48

Partial Budget - Cash Flow Analysis	
Proposed change: Purchase 1,000 kg of Total Production Quota to reduce over-quota production. At a fat test of 3.7 kg/hl, this will allow an additional (1000 ÷ 3.7 =) 270 hl to be shipped annually. Projected protein test is 3.25 kg/hl; other solids is 5.6 kg/hl; current TPQ price is \$57/kg.	
Advantages	Disadvantages
Added Cash Inflow fat: 1000 kg x \$4.50/kg = \$4,500 protein: 270 hl x 3.25 kg/hl x \$9.70/kg = \$8,512 other solids: 270 hl x 5.6 kg/hl x \$1.36/kg = \$2,056 CDC subsidy: 1,000 kg x \$0.422/kg x 95% x 45.67% = \$183	Added Cash Outflow Variable cash costs Fixed cash costs Loan payments (7 year term, 9%) 1,000 kg x \$57/kg = \$57,000 loan \$57 x \$16.09 = \$917.13/month \$917.13 x 12 = \$11,006/year
Reduced Cash Outflow Variable cash costs Fixed cash costs Loan payments	Reduced Revenue excess production: 270 hl x \$10/hl = \$2,700 (\$10/hl anticipated value of class 4m)
Total Advantages (A): \$15,251	Total Disadvantages (B): \$13,706
Estimated Change in Annual Net Cash Flow (A-B): \$1,545	