



B.C. DAIRY TALK

Editor: Annette Moore

The Use Of The Partial Budget In A Dairy Enterprise

Lawrence Hurd
Business Management Specialist

Partial budgeting is the appropriate management tool to use when proposed changes to an ongoing farm business affect only a portion of the business. It is used, therefore, to estimate the impact a proposed change will have on farm profits. Many partial budgets may be required to “test” several different scenarios. It is not suitable for use when whole farm planning is desired. For example, a partial budget could be used to analyze the purchase of additional land, buildings, or quota.

Instructions for Partial Budgeting

Proposed change:

Clearly and concisely outline the proposed change to the farm operation. This statement will influence how you record the changes to revenue and costs in the partial budget.

Advantages:

1. Added Revenue

Consider only the added value of production or revenue expected from the addition of a new enterprise, the addition of fixed resources such as equipment and land, or the use of more variable inputs such as fertilizer. Do not include income from the sale of capital assets.

2. Reduced Costs

Include reduced variable and fixed costs. Use average annual depreciation amounts derived with the straight-line method and average investment costs on capital.

Disadvantages:

3. Added Costs

Include added variable and fixed costs. Variable costs may include additional interest charges associated with an operating loan.

Use average annual depreciation amounts derived with the straight-line method and average investment costs on capital (e.g. 5%). Do not include the purchase price of land, machinery, equipment, buildings, and quota as an added annual cost. It is accounted for through depreciation and interest.

4. Reduced Revenue

Revenue may be reduced if the change eliminates an enterprise, reduces the size of an enterprise, or results in lower production.

Guidelines for Partial Budgeting

Changes Only

The partial budget should only include items that will actually change (revenue and costs) if the proposal is implemented. If the proposed change utilizes resources already on the farm (e.g. equipment, surplus labour) then no added fixed costs will be incurred. In the case of machinery, total fixed costs (e.g. interest on investment and insurance) will not change even though the fixed costs per hour or per acre will be lower. In many instances, depreciation on this machinery will not change either. Total variable costs (e.g. fuel, oil, and repairs) will change and therefore must be included in the budget.



Annual Depreciation

To accurately estimate the average annual depreciation is not easy. The maximum rates allowed for income tax purposes (capital cost allowance) may not accurately reflect the actual depreciation of machinery, equipment, and buildings particularly if accelerated rates are allowed (e.g. manure storage facilities).

It is a common practice to depreciate general farm machinery over 10 years with a salvage value equal to 10% of the original cost. Buildings normally have a useful life of at least 20 years, subsurface drainage 30 years, and irrigation equipment 15 years. As a general rule it is best to be on the conservative side!

Borrowed Money

In the case of borrowed money, the business will have an actual interest rate. Also, there is an opportunity cost on funds taken from a bank savings account, bonds, term investments, etc. Both interest costs must be accounted for in the partial budget.

Profitability

Remember that partial budgets are designed to estimate **profitability** from a small change in the business. Many changes involve capital purchases in the first year followed by years of income and expenses that are constant except for variations caused by weather conditions, market prices etc.

Impact on Cashflow

Before implementing the proposal, the manager must look at the impact this change will have on the **cash flow** of the business. This can be done by preparing cash flow budgets for the whole farm over a minimum of two years or using the “partial budget - cash flow analysis” format outlined in the example partial budget.

Remember that depreciation is a not a cash cost so it is not included in the partial cash flow budget. The average investment cost (opportunity cost of the investment) is also removed but replaced with a loan payment if credit is involved. The bottom line “net cash flow” is the residual left over for the operator’s labour, depreciation, and equity investment.

Lifestyle Choices

Farm business operators don’t make decisions on straight dollars and cents or economic considerations alone. There are non-economic factors in making a choice between alternatives. For example, leisure, personal likes and dislikes, and the risk involved.

These deal with the question “Do you want to do it?”

Example Partial Budget

Examples of partial budget (economic and cash flow) for purchasing additional quota with **no changes** in cow numbers are based on the following:

Assumptions

- over quota milk production is 74 litres per day
- butter fat test is 3.7 kg/hl
- total production quota (TPQ) required is 1,000 kg butter fat
- cost of TPQ is \$40 per kg butter fat
- domestic milk price
 - (i) skim milk \$38.50/hl
 - (ii) butter fat \$4.25/kg
- world price for butterfat, protein, and other solids is equivalent to \$21/hl
- Loan 5 year term @ 9% interest

Amortization Factors

The following amortization factors are provided so you can estimate the annual payments for an amortized loan with equal total payments. Multiple the size of the loan by the appropriate factor from the table below. For example, the amortization factor for a 5-year loan at 9% interest is .2571.

Years	Interest Rate (%)				
	8	9	10	11	12
5	.2505	.2571	.2638	.2706	.2774
6	.2163	.2229	.2296	.2364	.2432
7	.1921	.1987	.2054	.2122	.2191
8	.1740	.1807	.1874	.1943	.2013
9	.1601	.1668	.1736	.1806	.1877
10	.1490	.1558	.1627	.1698	.1770
11	.1401	.1469	.1540	.1611	.1684
12	.1327	.1396	.1468	.1540	.1614
13	.1265	.1336	.1408	.1481	.1557
14	.1213	.1284	.1357	.1432	.1509
15	.1168	.1241	.1315	.1391	.1468

Partial Budget - Economic Analysis

Proposed change: Purchase 1,000 Kg of TPG to reduce world production by 74 litres per day where the b.f. test is 3.7 Kg/hl.

Advantages

Disadvantages

1. Added Revenue

$$\text{Kim milk} = \frac{74 \text{ l}}{\text{day}} \times 365 \text{ days} \times \frac{\$38.50}{100 \text{ l}} \text{ Variable}$$

$$= \$10,399$$

$$\text{Butter Fat } 1000 \text{ Kg} \times \$4.25 / \text{Kg}$$

$$= \$4,250$$

$$\therefore \text{D.C. subsidy } \quad \quad \quad \$467$$

3. Added Costs

Fixed

Depreciation

$$1,000 \text{ Kg} / \frac{\$40}{\text{Kg}} \times 10\% = \$1,000$$

Investment

$$1,000 \text{ Kg} \times \frac{\$40}{\text{Kg}} \times 5\% = \$2,000$$

2. Reduced Costs

Variable

Fixed

Depreciation

Investment

4. Reduced Revenue

World production

$$\frac{74 \text{ l}}{\text{day}} \times 365 \text{ days} \times \frac{\$21}{100 \text{ l}}$$

$$= \$5,672$$

Total Advantages A (15,116) Total Disadvantages B (11,672)

Estimated Change in Annual Farm Profit (A - B) = (3,444)

Other Considerations

Proposed change: Purchase 1,000 Kg b.f. of TPU to reduce world production by 74 litres per day where the b.f. test is 3.7 Kg/hl. Five year loan @ 9% interest.

Advantages

Disadvantages

1. Added Cash Inflow

3. Added Cash Outflow

$$\begin{aligned} \text{Skim milk} & 74 \text{ l} \times 365 \times \frac{\$38.50}{100 \text{ l}} \\ & = \$10,399 \\ \text{Butter fat} & 1,000 \text{ Kg} \times \$4.25/\text{Kg} \\ & = \$4,250 \end{aligned}$$

Variable cash costs

Fixed cash costs

$$\text{C.D.C. subsidy} \quad \$467$$

$$\begin{aligned} \text{Loan payments} \\ 1,000 \text{ Kg} \times \frac{\$40}{\text{Kg}} \times .2571 \\ = \$10,284 \end{aligned}$$

2. Reduced Cash Outflow

4. Reduced Cash Inflow

Variable cash costs

World production

Fixed cash costs

$$\frac{74 \text{ l}}{\text{day}} \times 365 \times \frac{\$21}{100 \text{ l}}$$

Loan payments

$$= \$5,672$$

Total Advantages A (15,116) Total Disadvantages B (15,956)

Estimated Change in Annual Cash Flow (A - B) = (-840)

Other Considerations