

Hay Production - 300 acres - Kamloops

This information is a resource to project costs and returns for British Columbia farm enterprises and is a general guide to plan individual farm operations. This budget should be used as a guide only. Each farm should develop their own budget to reflect specific production goals, costs and market prices.

Information regarding financial planning and other enterprise budgets may be viewed at the B.C. Ministry of Agriculture and Lands website (<http://www.agf.gov.bc.ca/busmgmt/>) and their information portal, InfoBasket (<http://www.infobasket.gov.bc.ca>).

HISTORICAL PRICES

Prices for hay are affected by items such as demand for feed from livestock producers, livestock prices and the levels of annual hay production. Prices often vary from region to region and thus farm managers should spend time researching hay prices by talking with local hay producers and livestock producer, as well as researching via the Internet. Suggested websites of interest include:

- Feed Listings - Peace River Forage Association of BC
http://www.peaceforage.bc.ca/feed_listings.htm
- Hay, Straw and Pasture Listings – Alberta Agriculture and Food
<http://www.agric.gov.ab.ca/app68/hay>
- Hay & Forage Grower
<http://www.forageinfo.com/>
- Hay & Forage – Farms.com
<http://www.farms.com/forage/default.asp>

KEY FACTORS AFFECTING PROFITABILITY

Key factors seen as affecting the value of production and thus profit of the business include:

- Yield per acre
- Price per ton
- Control of direct costs such as fertilizer and seed
- Management of an effective fertilizer program

SAMPLE REVENUE AND EXPENSE BUDGET INFORMATION

This budget summarizes the revenue and expenses for a model farm operation at this location. These statements show the profit or loss of the farm business and are prepared on an accrual basis.

- **Revenue** is the value generated from sales of hay plus alfalfa on first and second cut.
- **Direct costs** are those costs that can readily be identified with items produced by the business. Examples are seed, fertilizer, fuel, twine, irrigation power, tarp, and machinery repairs costs.
- **Contribution Margin** equals Revenue less Direct Costs or the amount left over to contribute to indirect cost.
- **Indirect Costs** are items such as operating interest, interest on long term debt, depreciation on building and equipment, land taxes, interest on loans, land taxes, land rental, general/office overhead and insurance.
- **Net Farm Income** equals Revenue less all Direct and Indirect Costs. This is the amount left to pay principle payments and living expenses and can be used to review return on equity and return on investment.

ASSUMPTIONS

The following assumptions were made in calculating the revenue and expense budget.

Revenue & Expenses

- Projected revenue and expenses are based on current market prices.
- Price for Alfalfa Hay is \$105 per ton (first cut hay production) to \$125 per ton (second cut hay production).
- Labour cost included in the budget is for paid labour required over and above owner operator labour.
- Off-farm income and living expenses are not included in the budget.

Type, Size & Production Values

Model farm data such as deeded acres, owned land base, crop land acreage, and asset and liability type, size and value was developed through consensus research from producers at this specific location plus information from the Farm Financial Survey, Statistics Canada & Agriculture and Agri-food Canada.

- The farm operation is assumed to be currently in operation and it not a new business. This is reflected in the assets and liabilities of the business.
- Alfalfa crop is irrigated and requires two years to be in full production of hay:
 - Year one - the acreage is seeded to alfalfa with a cover crop of barley.
 - Year two - alfalfa is in full production and is cut for hay with a first and second cut production.
- The operation has 300 acres that is always in the following crop rotation:
 - 60 acres is in year one of establishment of an alfalfa hay crop. This acreage is seeded to a barley cover crop plus alfalfa and brome grass seed. There is no alfalfa hay production on that acreage in year one.
 - 240 acres in full production of alfalfa hay production with first cut providing a yield of 2.5 tons per acre and second cut providing a yield of 1.5 tons per acre.
- Direct expenses include: supplies and materials, seed (alfalfa, orchard grass, and barley), fertilizer, twine, fuel & lube costs, and machine repairs.
- The operation has an irrigation system and thus irrigation power is included as a direct cost.

SUMMARY OF HAY PRODUCTION REVENUE AND EXPENSES - 300 ACRES – KAMLOOPS

| REVENUE | Establishment Year 1 - 60 Acres | | | | | Full Production - 240 Acres | | | | |
|-------------------------------------|---------------------------------|-----------------|--------------|-----------------|-----------------|-----------------------------|-----------------|--------------|-----------------|-----------------|
| | Yield | Price | Units | \$Per Acre | \$/Ton | Yield | Price | Units | \$Per Acre | \$/Ton |
| Barley hay | 3.0 | \$100.00 | Ton | \$300.00 | | | | Ton | | |
| Alfalfa 1st Cut | | | Ton | | | 2.5 | \$105.00 | Ton | \$262.50 | |
| Alfalfa 2nd cut | | | Ton | | | 1.5 | \$125.00 | Ton | \$187.50 | |
| TOTAL REVENUE | 3.0 | | | \$300.00 | \$100.00 | 4.0 | | | \$450.00 | \$112.50 |
| DIRECT EXPENSES | | | Units | | | | | Units | | |
| Supplies and Materials | Quant. | \$/ Unit | Used | \$/Ac | | Quant. | \$/ Unit | Used | \$/Ac | |
| Seed: Alfalfa | 10.0 | \$3.50 | Lbs. | \$35.00 | | | | Lbs. | | |
| Orchard Grass | 4.0 | \$2.50 | Lbs. | \$10.00 | | | | Lbs. | | |
| Barley | 50.0 | \$0.18 | Lbs. | \$9.00 | | | | Lbs. | | |
| Fertilizer: 46-0-0 | 100.0 | \$0.23 | Lbs. | \$22.96 | | 100.0 | \$0.23 | Lbs. | \$22.96 | |
| : 0-0-60 | | \$0.18 | Lbs. | | | 60.0 | \$0.18 | Lbs. | \$10.54 | |
| : 11-52-0 | 50.0 | \$0.22 | Lbs. | \$11.09 | | 40.0 | \$0.22 | Lbs. | \$8.87 | |
| Custom fertilizer application | 1.0 | \$7.00 | acres | \$7.00 | | 1.0 | \$7.00 | acres | \$7.00 | |
| Twine | 3.0 | \$0.46 | T.of hay | \$1.37 | | 4.0 | \$0.46 | T.of hay | \$1.83 | |
| Irrigation Power | 1.0 | \$20.00 | \$/acre | \$20.00 | | 1.0 | \$20.00 | \$/acre | \$20.00 | |
| Tarp | 0.8 | \$0.39 | \$/ton | \$0.29 | | 1.0 | \$0.39 | \$/ton | \$0.39 | |
| Total Supplies and Materials | | | | \$116.72 | | | | | \$71.59 | |
| Fuel & Lube | | | | \$81.05 | | | | | \$43.24 | |
| Machine Repairs | | | | \$65.20 | | | | | \$41.94 | |
| TOTAL DIRECT EXPENSES | | | | \$262.97 | \$87.66 | | | | \$156.78 | \$39.19 |
| CONTRIBUTION MARGIN | | | | \$37.03 | \$12.34 | | | | \$293.22 | \$73.31 |

SENSITIVITY ANALYSIS OF CONTRIBUTION MARGIN

Profitability is strongly influenced by market prices (dollars per Ton) and production yield (Tons per acre). The following tables illustrate the resulting contribution margin as price and production levels yields vary.

Contribution Margin at Various Yields (Tons per acre) for Alfalfa Hay Production

| | Yield for Alfalfa Hay First Cut (Tons per Acre) | Yield for Alfalfa Hay Second Cut (Tons per Acre) | Contribution Margin per Acre At \$ 105 per ton (first cut hay) and \$ 125 per ton (second cut hay) |
|---------------------------------|---|--|--|
| | 3.0 | 2.0 | \$405.52 |
| Yield per Ton Value from Budget | 2.5 | 1.5 | \$293.22 |
| | 2.0 | 1.0 | \$180.93 |

Contribution Margin at Various Prices (Dollars per Ton) for Alfalfa Hay Production

| | Price for Alfalfa Hay First Cut (Dollar per Ton) | Price for Alfalfa Hay Second Cut (Dollar per Ton) | Contribution Margin per Acre (Yield Constant at 2.5 (first cut hay) and 1.5 (second cut hay) tons per acre) |
|---------------------------------|--|---|---|
| | 115 | 135 | \$333.00 |
| Price per Ton Value from Budget | 105 | 125 | \$293.22 |
| | 95 | 115 | \$253.00 |

INVESTMENT CAPITAL REPLACEMENT COSTS

The following equipment and buildings would be required for the operation. Thus, the start up investment for the operation would include the market value of machinery, building and land (purchase or rental costs) and should be reviewed as part of the return on assets and return on investment.

| | Replacement Value |
|----------------------|-------------------|
| Tractor #1 60 hp | \$60,000 |
| Tractor #2 100 hp | \$100,000 |
| Tractor #3 50 hp | \$50,000 |
| Plow 4 btm | \$12,000 |
| Disc 14ft | \$16,000 |
| Harrows 18 ft | \$5,000 |
| Drill 10 ft | \$5,000 |
| Swather /Conditioner | \$30,000 |
| Side Delivery | \$6,000 |
| Round Baler | \$35,000 |
| Wagon | \$6,000 |
| Irrigation system | \$120,000 |
| ATV | \$8,000 |
| ATV | \$8,000 |
| Pick up | \$45,000 |
| Truck | \$45,000 |
| Gooseneck | \$20,000 |
| Small tools | \$10,000 |
| Workshop | \$18,750 |
| Machine Storage | \$18,000 |

CONTACT

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