Explained in Brief

Dairy Farm Income (#3)

Ag-Economics Analytics

Structural change, variable costs

Dairy farms consolidated drastically over the past 20 years (and likely before), leading to fewer larger operations with total production capped by supply management. Cows became more productive and inflation-adjusted cost of production ranged between $50 and $60 per hectolitre over time without a sharp time trend. Concentrate feed, in particular, is a critical cost factor calling for close attention in cost management.

Using our inflation-adjusted Dairy Cost Study data (in constant 2002 Canadian dollars) for Alberta dairy farms, this current issue of "In Brief" looks at revenues and net income per hectolitre and asks whether dairy operations are better off today than 20 years ago.

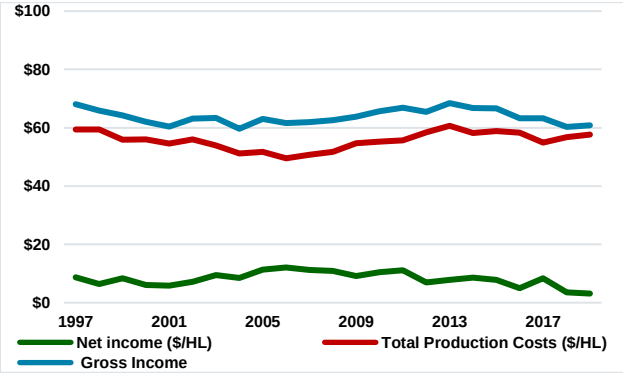
Dairy revenue and net income[1]

Dairy farms generate an average revenue of just under $64 per hectolitre of milk sold. Milk sales account for most of the revenue at $60/hl (94 per cent). Net cattle sales and inventory changes complement milk sales. Milk sales vary little around the mean at plus/minus 3.5 per cent over time[2]. Milk sales declined between 1997 and 2001, and from 2013 onward. During these periods, farmers sold cattle (net cattle sales are larger than in other years) and compensated, partially, for some revenue loss. Drought years, e.g. 2013, when Alberta lost 3,000 head of dairy cows (see "In Brief" Dairy #1), likely accelerate dairy cow sales.

Figure 1 summarizes annual production costs, revenues and net income (profit) per hectolitre of milk sold in inflation-adjusted dollars. Neither production costs (see: "In Brief" Dairy #2) nor revenues per hectolitre (red and blue lines, respectively) follow pronounced time trends, but rather seem to behave in a cyclical fashion.

Net income per hectolitre (green line) measures the difference between revenues and costs. As the gap between the lines widens, net income increases. Conversely, as the gap narrows, net income falls. Over the past 20 years, net income averaged $8.16 per hectolitre of milk sold. It exceeded this inflation-adjusted 20-year-average in most years until 2011, but has fallen since then, except in 2014 and 2017.

Figure 1. Revenue, costs and net income per hectolitre of milk sold ($\$_{2002}$/hl), Alberta, 1997-2019



Source: *Dairy Cost Study, Alberta Agriculture and Forestry (AF), E&C Branch*

[1] We adjusted all dollar values by inflation to the base year 2002. As a result, the numerical values cited here are different from those calculated in the Dairy Cost Study.

[2] The value refers to variation of revenue around its mean (in per cent).

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With a variation of plus/minus $2.46/hl (30 per cent), net income per hectolitre sold varies more than costs or revenues.

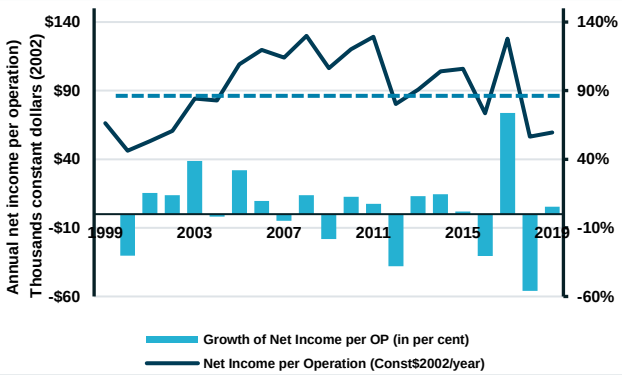
Notice how in Figure 1, dairy revenues seem to follow the cyclical movement of production costs, but the gap started tightening since 2012? This synchronized movement results from price setting by the Canadian Dairy Commission and Alberta Milk under supply management. The “net revenue hump” between 2000 and 2012 indicates that revenues move “flatter” than costs, hence allowing dairy farmers to translate lower costs into higher net income in these years.

Are dairy farmers better off?

How have dairy operations fared over time? Figure 2 juxtaposes inflation-adjusted net income, this time at the farm level (per dairy operation), and annual net income growth rates. It provides a glimpse at dairy farm family incomes over time.

Over the past 20 years, net dairy farm incomes in Alberta averaged at $88,000 per year (inflation adjusted), or $104,500 per operation per year in current dollar terms. This is likely higher than the inflation-adjusted long-term median family income in Alberta (See Statistics Canada).

Figure 2. Inflation-adjusted annual net income per dairy farm, Alberta, 1999-2019



Source: *Dairy Cost Study, Alberta AF, E&C Branch*

Net incomes vary strongly year over year with 33 per cent (+/- $29,000) around the average. This is the same magnitude of variation as per hectolitre. Net farm incomes were above average between 2005 and 2015 (except 2012), similar to a “bonanza” period in field crops (see “In Brief” Canola). Since 2011, Alberta dairy farm net incomes declined, and in 2019 they were as low as 20 years ago.

Overall, the long-term average growth rate (20 years) of inflation-adjusted net dairy incomes has increased by a healthy 3.7 per cent per year, even if some years saw very low net incomes. Over the past years, however, inflation-adjusted net farm incomes were, on average, rather stagnant (0.5 per cent growth per year). In the more recent past, growth rates of net incomes have dropped negative (-1.1 per cent growth per year).

Are farmers better off? The short answer is a qualified “yes”. Larger farm herds and higher cow productivity in conjunction with tightly managed production costs have provided above-average family incomes and produced growth over time. However, even though net farm incomes have grown in the long term, they show cyclical trends with long stretches of stagnating or falling incomes. Dairy farming is about the long haul.

Take home messages

- Between 1997 and 2019, net dairy farm incomes averaged just under $90,000 per year (inflation-adjusted), and higher than the average median family income in Alberta.
- Net incomes per operation suffer from high variability. This emphasizes the need for long-term farm management strategies.
- Dairy farming is a long haul with strong long-term growth. However, in the short- and medium-term dairy income growth can be stagnant or negative.

The Dairy Cost Study is a business analysis program offered annually by Agriculture and Forestry’s Economics Section. It monitors the ongoing economic and financial performance of Alberta’s dairy sector, and supports informed decision making by government and industry (see https://www.alberta.ca/agriprofits-dairy.aspx).

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