

Financial Concepts for Farm Management

TRI-STATE FINANCIAL WORKSHOP



Joanna Lidback, MBA, CAC

Round of 64



**Fairleigh
Dickinson**

21-15

Mar 17 · Final



@ Purdue

29-6



Fairleigh Dickinson

Purdue

1 2 Total





Round of 64



**Fairleigh
Dickinson**

21-15

Mar 17 · Final



@ Purdue

29-6



Fairleigh Dickinson

Purdue

1 2 Total



Three Basic Financial Statements Keep Score for Businesses.

- Balance Sheet
- Income Statement
- Cash Flow Statement

The Balance Sheet is a Snapshot in Time

- Taken on a single date – “As of December 31, 2022”
- Lists Assets and Liabilities of Business
- Calculates the Owner’s Equity
- Based on the balance sheet equation:

$$\text{Assets} - \text{Liabilities} = \text{Owner's Equity}$$

Balance sheet example

TEDDY FAB INC. BALANCE SHEET December 31, 2100

ASSETS

Current assets

Cash and cash equivalents	\$ 100,000
Accounts receivable	20,000
Inventory	15,000
Prepaid expense	4,000
Investments	10,000
Total current assets	149,000

Property and equipment

Land	24,300
Buildings and improvements	250,000
Equipment	50,000
Less accumulated depreciation	(5,000)

Other assets

Intangible assets	4,000
Less accumulated amortization	(200)

Total assets **\$ 472,100**

LIABILITIES AND SHAREHOLDERS' EQUITY

Current liabilities

Accounts payable	\$ 30,000
Notes payable	10,000
Accrued expenses	5,000
Deferred revenue	2,000
Total current liabilities	47,000

Long-term debt 200,000

Total liabilities **247,000**

Shareholders' Equity

Common stock	10,000
Additional paid-in capital	20,000
Retained earnings	197,100
Treasury stock	(2,000)

Total liabilities and shareholders' equity **\$ 472,100**

The Income Statement Tracks Over Time

- Tracks Income and Expenses over a specific period:
January 1, 2022 – December 31, 2022
- Operating Expenses
- May or may not include “family draw” – check!
- Income Statement Equation:

$$\text{Income} - \text{Expenses} = \text{Net Income (or Loss)}$$

My Awesome Company

PROFIT AND LOSS

January - December 2018

	TOTAL
Income	\$87,763.99
Cost of Goods Sold	\$9,328.00
GROSS PROFIT	\$78,435.99
Expenses	\$5,707.06
NET OPERATING INCOME	\$72,728.93
Other Income	\$43.12
Other Expenses	\$10,721.88
NET OTHER INCOME	\$ -10,678.76
NET INCOME	\$62,050.17

The Cash Flow Statement Ties it All Together

- Also record for a specific period:
January 1, 2022 – December 31, 2022

- Starts with Net Income
- Demonstrates Sources & Uses of Cash

Beginning Cash as of 1/1/2022 + Sources of Cash

- Uses of Cash = Ending Cash as of 12/31/22

Paul's Guitar Shop
Statement of Cash Flows
For the Year Ended December 31, 2015

CASH FLOWS FROM OPERATING ACTIVITIES

Net income	\$ 12,950
Adjustments to reconcile net income to net cash provided by operating activities:	
Depreciation on fixed assets	2,000
(Increase) decrease in current assets:	
Accounts receivable	(300)
Inventory	(39,800)
Prepaid expenses	(1,000)
Increase (decrease) in current liabilities:	
Accounts payable	49,000
Accrue expenses and unearned revenues	1,450
NET CASH PROVIDED BY OPERATING ACTIVITIES	<u>24,300</u>

CASH FLOWS FROM INVESTING ACTIVITIES

Purchase of property and equipment	<u>(101,000)</u>
NET CASH USED IN INVESTING ACTIVITIES	<u>(101,000)</u>

CASH FLOWS FROM FINANCING ACTIVITIES

Proceeds from line of credit	-
Payments on line of credit	10,000
Proceeds from long-term debt	99,500
Payments on long-term debt	<u>-</u>
NET CASH PROVIDED (USED) IN FINANCING ACTIVITIES	<u>109,500</u>
NET INCREASE (DECREASE) IN CASH	<u>32,800</u>

BEGINNING CASH BALANCE	<u>-</u>
ENDING CASH BALANCE	<u>\$ 32,800</u>



Cost of Production Uses Multiple Sources

- Lots of different definitions... be careful!
- Income Statement
- Herd Records for per unit computation

Cash or Accrual? That is the Question...

- Farmers are cash-based taxpayers
 - Income and expenses are recognized or deducted when cash is received, or an expense is paid for.
- Accrual records offer a more accurate picture
 - Income and expenses are recognized or deducted when the work is completed (and invoiced) or the goods/service is used up.

Why isn't this Farm Doing Better?

Info Shared:

- 1000-cow dairy
- 85-pound herd average
- \$7 feed cost per cwt
- 1,400,000 pounds milk shipped per worker
- Milk price is \$18
- Breakeven milk price is \$17

Missing info:

Feed bill (accounts payable) increased from Jan 1 to Dec 31, effectively adding \$1.50 per cwt to overall feed expense.

Lunch Time!

Per Unit Analysis Allows for Apples-to-Apples Comparison

- Removes noise of herd-size, other factors.
- Allows for better comparison with industry benchmarks, historical performance
- Industry benchmarks available: Pro-Dairy's Dairy Farm Business Summary, Farm Credit's Northeast Dairy Farm Business Summary, NOFA-VT Organic Dairy Cost Study

Income Over Feed Metrics Ask if the “Juice is Worth the Squeeze”

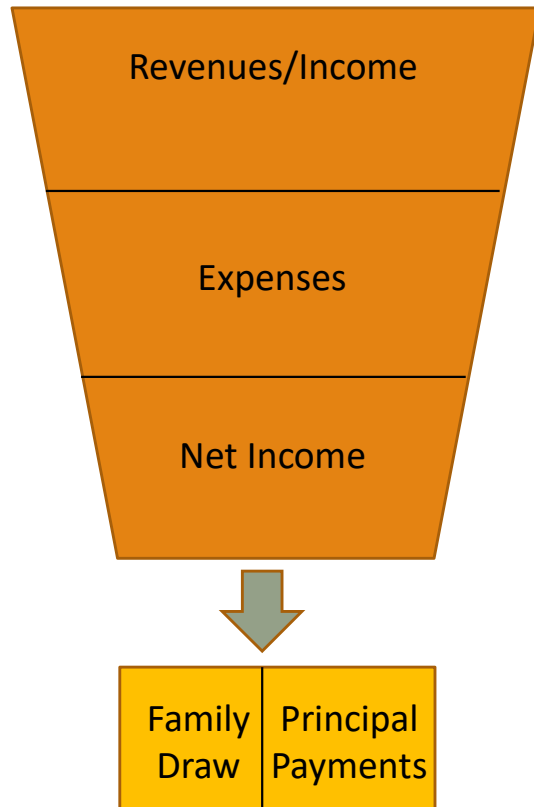
- Basic form: Milk income per cwt (Milk Price) less Purchased feed costs per cwt
- Other iterations: Crop-related income and inputs, energy corrected cwts., per cow per day
- Difference between nutritionist and checkbook is theoretical vs actual dollars
- Feed dollar is one of the largest proportional investments in your farm

Labor Efficiency and Productivity Gaining Renewed Attention

- Measured in cows per worker, milk sold per worker, % labor expense of total revenue
- First step, gather worker equivalents
- Factors that influence labor productivity:
 - Job quality
 - Culture
 - ??

“Profits cure a lot of ills,
But cash flow pays
The bankers’ bills.”

- Dean Duelke



What Does a Break-Even Milk Price Tell You?

- Cash number
- Covers
 - Operating expenses
 - Family draws
 - Principal payments
- Missing?
 - Capital expenses
 - Depreciation

Break-Even Milk Price vs. Cost of Production

Usually quoted on per Cwt.

Cost of Production

Gross Income

- Operating Expenses

Net Income

- Can include depreciation

Break-Even Milk Price

Operating Expenses

+ Family Draw

+ Principal Payments

- Non-Milk Income

Break-Even Milk Price

Required Elements for Breakeven Milk Price

- Operating Expenses
- Family Living/Draw
- Principal Payments
- Non-Milk Income
- Milk Production – Pounds to Cwt.

Operating Expenses per 15,000 Annual Cwts.

Feed - \$120,000	\$8.00
Labor - \$60,000	\$4.00
Livestock Supplies - \$22,500	\$1.50
Fuel - \$9,000	\$0.60
Crop Inputs/Custom - \$45,000	\$3.00
Marketing/Hauling - \$33,750	\$2.25
IRTI- 5 - \$35,000	\$2.33
Utilities - \$7,500	<u>\$0.50</u>
Total Operating Expenses per Cwt	\$22.18

Other Cash Needs per 15,000 Annual Cwts.

Operating Expenses - \$334,000	\$22.18
Family - \$45,000	\$3.00
Principal Payments - \$24,000	<u>\$1.60</u>
“Check-writing Number”	\$26.78

Non-Milk Income per 15,000 Annual Cwts.

Cull Cow Sales - \$12,000	\$0.80
Beef Calves - \$3,000	\$0.20
Rental Income - \$9,600	\$0.64
Other Farm Enterprise (Compost) -\$5,000	\$0.33
Off-farm Employment - \$45,000	<u>\$3.00</u>
Total Non-Milk Income	\$4.97

Drum Roll Please...

Cash Requirements	\$26.78
Less Non-Milk Income	<u>\$4.97</u>
Break-Even Milk Price	\$21.81

Using Agri-Mark's Forecast to Plan Ahead

	COMPONENT PRICES PER POUND				BOSTON BLEND PRICE @3.5 bf	Class Price				Class III Futures	Class IV Futures	DMC Margin ¹
	BUTTER		OTHER	BOSTON								
	FAT	PROTEIN	SOLIDS	PPD/cwt.		I	II	III	IV			
JAN-23	\$2.67	\$3.05	\$0.24	\$2.09	\$21.92	\$25.66	\$20.82	\$19.83	\$19.78	\$19.83	\$19.75	\$7.68
FEB-23	\$2.65	\$2.79	\$0.21	\$2.11	\$20.89	\$24.13	\$20.09	\$18.78	\$19.43	\$18.81	\$19.45	\$7.15
MAR-23	\$2.60	\$2.84	\$0.22	\$1.62	\$20.44	\$22.94	\$19.96	\$18.82	\$19.17	\$18.70	\$19.44	\$6.40
APR-23	\$2.56	\$2.81	\$0.21	\$1.79	\$20.34	\$22.94	\$20.00	\$18.56	\$19.22	\$19.04	\$19.50	\$6.76
MAY-23	\$2.54	\$2.84	\$0.23	\$1.80	\$20.46	\$22.99	\$20.05	\$18.66	\$19.31	\$19.30	\$19.73	\$6.42
JUN-23	\$2.48	\$2.93	\$0.24	\$1.58	\$20.37	\$23.06	\$19.96	\$18.80	\$19.18	\$19.60	\$19.90	\$6.35
JUL-23	\$2.48	\$2.97	\$0.24	\$1.63	\$20.52	\$23.21	\$20.09	\$18.89	\$19.35	\$19.80	\$20.13	\$6.44
AUG-23	\$2.54	\$2.90	\$0.24	\$1.81	\$20.72	\$23.35	\$20.39	\$18.92	\$19.65	\$20.00	\$20.25	\$7.47
SEP-23	\$2.57	\$2.83	\$0.26	\$1.91	\$20.85	\$23.54	\$20.61	\$18.95	\$19.86	\$20.08	\$20.50	\$8.59
OCT_23	\$2.66	\$2.77	\$0.26	\$2.10	\$21.18	\$23.78	\$20.99	\$19.08	\$20.25	\$20.20	\$20.59	\$8.76
NOV_23	\$2.72	\$2.74	\$0.27	\$2.20	\$21.45	\$24.01	\$21.25	\$19.25	\$20.55	\$20.15	\$20.69	\$8.15
DEC_23	\$2.78	\$2.74	\$0.27	\$2.05	\$21.51	\$23.68	\$21.38	\$19.47	\$20.76	\$19.75	\$20.30	\$8.72

Use Your Basis to Determine Estimated Farm Gate Milk Price for 2023

			Basis	
		My Farm	Boston Blend	To Blend
2022	Jan	25.50	22.74	2.76
	Feb	26.07	23.67	2.40
	Mar	27.10	24.74	2.36
	Apr	28.25	26.07	2.18
	May	28.15	26.58	1.57
	Jun	27.92	26.98	0.94
	Jul	27.24	26.36	0.88
	Aug	26.76	25.42	1.34
	Sep	27.64	24.82	2.82
	Oct	28.43	24.77	3.66
	Nov	27.57	24.27	3.30
	Dec	25.30	23.10	1.50

Average: \$27.16

			Basis	
		My Farm	Boston Blend	To Blend
2023	Jan	24.06	21.92	1.50
	Feb	22.93	20.89	1.50
	Mar	22.40	20.44	1.50
	Apr	22.23	20.34	1.50
	May	22.29	20.46	1.50
	Jun	22.20	20.37	1.50
	Jul	22.40	20.52	1.50
	Aug	22.65	20.72	1.50
	Sep	22.79	20.85	1.50
	Oct	23.01	21.18	1.50
	Nov	23.10	21.45	1.50
	Dec	23.01	21.51	1.50

Average: \$22.76

Looking Like a Cash Flowable Year in 2023

○ Estimated Farm Gate Milk Price	\$22.76
○ Less Break-Even Milk Price	<u>\$21.81</u>
○ Net Cash Flow Excess/(Deficit)	\$0.95
○ Whole Dollar	\$14,250

Strategies to Lower Break-Even Milk Price

- Lower Operating Expense
- Lower Family Draw
- Maintain Low Debt
- Increase Non-Milk income
- Increase/Improve Production

Example: Increase Production, Same Operating Expenses

	Per 15,000	Per 16,000
Feed - \$120,000	\$8.00	\$7.50
Labor - \$60,000	\$4.00	\$3.75
Livestock Supplies - \$22,500	\$1.50	\$1.41
Fuel - \$9,000	\$0.60	\$0.56
Crop Inputs/Custom - \$45,000	\$3.00	\$2.81
Marketing/Hauling - \$33,750	\$2.25	\$2.25
IRTI- 5 - \$35,000	\$2.33	\$2.19
Utilities - \$7,500	<u>\$0.50</u>	<u>\$0.47</u>
Total Operating Expenses per Cwt	\$22.18	\$20.94

Example: Increase Production, Same Cash Requirements

	Per 15,000	Per 16,000
Operating Expenses - \$334,000	\$22.18	\$20.94
Family - \$45,000	\$3.00	\$2.81
Principal Payments - \$24,000	<u>\$1.60</u>	<u>\$1.50</u>
“Check-writing Number”	\$26.78	\$25.25

Example: Increase Production, Non-Milk Income

	Per 15,000	Per 16,000
Cull Cow Sales - \$12,000	\$0.80	\$0.75
Beef Calves - \$3,000	\$0.20	\$0.19
Rental Income - \$9,600	\$0.64	\$0.56
Other Farm Enterprise (Compost) -\$5,000	\$0.33	\$0.31
Off-farm Employment - \$45,000	<u>\$3.00</u>	<u>\$2.81</u>
Total Non-Milk Income	\$4.97	\$4.62

Example: Increase Production, Lower Break-Even

	Per 15,000	Per 16,000
Cash Requirements	\$26.78	\$25.25
Less Non-Milk Income	<u>\$4.97</u>	<u>\$4.62</u>
Break-Even Milk Price	\$21.81	\$20.63
Estimated Milk Price	\$22.76	\$22.76
Net Cash Flow Excess/(Deficit)	\$0.95	\$2.13
Whole Dollar	\$14,250	\$34,080

Budgeting from the Bottom-Up



Start from the Bottom Line to Ensure Enough Cash

- How much do you need?
 - Family draw/expenses - \$50,000
 - Principal payments - \$24,000
 - Capital replacement - \$15,000
 - Grow liquidity/investment goals - \$6,000

	Whole dollar	Per cwt.
Revenue		
Cost of Goods Sold		
Gross Margin		
Overhead		
Net Profit	\$95,000	
Cash Needs	\$95,000	
Excess/Deficit	0	

Overhead Expenses are Fixed

- Fixed expenses don't change with production
 - Utilities - \$18,000
 - DIRT 5 - \$60,000
 - Repairs - \$20,000

	Whole dollar	Per cwt.
Revenue		\$25.00
Cost of Goods Sold		
Gross Margin	\$193,000	
Overhead	<u>\$98,000</u>	
Net Profit	\$95,000	
Cash Needs	<u>\$95,000</u>	
Excess/Deficit	0	0

Cost of Goods Sold are Variable Expenses

- Variable expenses change with level of production.
- Start by estimating per unit costs
 - Feed - \$8.00 per cwt
 - Labor - \$3.00 per cwt
 - Livestock expenses - \$2.00 per cwt
 - Marketing/hauling milk - \$2.00 per cwt
 - Crop inputs - \$1.50 per cwt
 - Fuel - \$0.50 per cwt

	Whole dollar	Per cwt.
Revenue		\$25.00
Cost of Goods Sold		<u>\$17.00</u>
Gross Margin	\$193,000	\$8.00
Overhead	<u>\$98,000</u>	
Net Profit	\$95,000	
Cash Needs	<u>\$95,000</u>	
Excess/Deficit	0	0

Use Math to Determine How Many Pounds Needed to get to Gross Margin

- Need \$193,000 leftover to cover overhead and cash needs.
- Milk price is \$25 per cwt., COGS estimated at \$17 per cwt
- Leaves \$8 per cwt to get to \$193,000
- $\$193,000 / \$8 = 24,125$ cwts or 2,412,125 lbs.
- Cow numbers? Production per cow?

	Whole dollar	Per cwt.
Revenue	\$603,125	\$25.00
Cost of Goods Sold	<u>\$410,125</u>	<u>\$17.00</u>
Gross Margin	\$193,000	\$8.00
Overhead	<u>\$98,000</u>	<u>\$4.06</u>
Net Profit	\$95,000	\$3.94
Cash Needs	<u>\$95,000</u>	<u>\$3.94</u>
Excess/Deficit	0	0

Resources

- Benchmarks
 - Northeast Dairy Farm Summary – FarmCreditEast.com
 - Cornell's Dairy Farm Business Summary- CALS.Cornell.edu/pro-dairy
- My Contact:
 - joanna@adkmanagement.net
 - Adkmanagement.net
 - DairyDividends.com (coming soon!)
 - Find me on Facebook and LinkedIn! @joannalidback