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Dairy Farm Business Summary and Analysis Project

Glossary of Terms Associated With the DFBS

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Jason Karszes and Lauren Augello[1]

The Dairy Farm Business Summary and Analysis program (DFBS) is an applied research, extension, and teaching effort ongoing since 1955 within New York State. A partnership between Cornell University and Cornell Cooperative Extension, the objective of the program is to enhance the management skills of dairy managers by applying modern financial analysis techniques with actual farm data to provide data for use in evaluation business performance, goal setting, and decision making.

With this effort over time, sets of standards have been developed that are used each year, providing consistency in terminology and calculations over time in how the farm information is presented, calculated, and summarized. To help in the overall understanding of the various measures and terms within the DFBS, the following glossary of terms has been prepared. While the intent of this list is to include all the key measures, some may have been missed.

Much of this list was drawn from the glossary or summarized from text that was published in the research and extension bulletins for the Dairy Farm Business Summary over the years, drawing from:

E.B 2018-06, Dairy Business Summary New York State 2017, Karszes, J, Christman, A, Howlett, A, & Knoblauch, W., Charles H. Dyson School of Applied Economics and Management, College of Agriculture and Life Sciences, Cornell University, Ithaca, New York, August 2018

[1] PRO-DAIRY Program, Department of Animal Science, College of Agriculture and Life Sciences, Cornell University

DFBS GLOSSARY OF TERMS

Accounts Payable: Open accounts or bills owed to feed and supply firms, cattle dealers, veterinarians, and other providers of farm services and supplies.

Accounts Receivable: Outstanding receipts from items sold or sales proceeds not yet received, such as the payment for December milk sales received in January.

Accrual Accounting: Accrual accounting adjustments are made to cash receipts and expenses to accurately measure annual receipts, expenses, and farm profitability. These procedures express the true value and cost of production for the year, regardless of whether cash was received or expended in this year. Cash expenses and cash receipts are used when evaluating the cash flow position of the business.

Accrual Expenses: The costs of inputs used in this year's production. They are the total of cash paid, as well as changes in inventory, prepaid expenses, and accounts payable.

Accrual Receipts: The value of all farm commodities produced, and services actually generated by the farm business during the year. They are the total of cash received, as well as changes in grown inventories and accounts receivable.

Advanced Government Receipts: The amount of government payments received in the year that are for the following year. Is entered as a liability on the bottom of screen 13. The change in advanced government receipts is used to adjust cash received to accurately reflect government program payments for the year.

Annual Cash Flow Statement: A statement that shows the net cash provided by operating activities, investing activities, financing activities, and from reserves. All cash inflows and outflows, including beginning and end balances, are included. Therefore, the sum of net cash provided from all four activities should be zero. Any imbalance is the error from incorrect accounting of cash inflows/outflows.

Appreciation: Appreciation represents the change in values caused by annual changes in prices of livestock, machinery, real estate inventory, and stocks and certificates (other than Farm Credit). Appreciation is a major factor contributing to changes in farm net worth and must be included for a complete profitability analysis.

Asset Turnover Ratio: Asset turnover ratio measures the relationship between capital investment and farm receipts. It is computed by dividing the year's total farm accrual receipts including appreciation by the average farm assets.

Available for Debt Service per Cow: Net cash available for debt service after deducting net personal withdrawals for family expenditures, divided by the average number of cows.

Average number of Cows: The average number of cows milking and dry for the year. Calculated by adding number of milking and dry cows by month, then dividing by the number of months.

Balance Sheet: A "snapshot" of the business financial position at a given point in time, usually December 31st. The balance sheet equates the value of assets to liabilities plus net worth on a market value basis.

Barn Types: Stanchion: cows are confined in a stall by a stanchion or neck chain. Freestall: cows move at will between open stalls and feeding areas. Combination: both stanchion and freestall barns used.

Business Records: Account Book: any organized farm record book or ledger. Accounting Service: any hired recordkeeping service. On-Farm Computer: computerized business and financial records entered and kept on the farm. Other: accountant, recordkeeping association or no organized recordkeeping system.

Capital Efficiency: The amount of capital invested per production unit. Relatively high investments per worker with low to moderate investments per cow imply efficient use of capital.

Capital Investment: Commonly used as substitute term for farm capital or total farm assets.

Cash Flow: The movement of money in and out of the business over a given period, e.g., one year (See Annual Cash Flow Statement).

Cash Flow Coverage Ratio: Measures the ability of the farm business to meet its planned debt payments scheduled for the year. The ratio shows the percentage of payments planned for the year that could have been made with the amount available for debt service for that year. The Cash Flow Coverage Ratio is determined by starting with cash farm receipts, adding back in interest paid (cash), subtracting cash farm expenses and net personal withdrawals from the farm and then dividing by the total planned debt service for the year.

Cash From Nonfarm Capital Used in the Business: Transfers of money from nonfarm savings or investments to the farm business where it is used to pay operating expenses, make debt payments and/or capital purchases. Also includes cost share government program payments for capital improvements, or other infusions of capital from non-farm sources.

Cash Paid: The actual cash outlay during the year and does not necessarily represent the cost of goods and services actually used in that year.

Cash Receipts: The actual cash received during the year, including the gross value of milk checks received during the year plus all other payments received from the sale of farm products, services, and government programs. Non-farm income is not included in cash receipts in calculating farm profitability.

Change in Accounts Payable: Calculated by subtracting the beginning of year balances from end of year balances. An increase in accounts payable from the beginning to end of year is added when calculating accrual expenses because these expenses were incurred (resources used) in the year but not paid for. A decrease is subtracted because the resource was used before the current year. The January feed bill for this December's feed deliveries compared with the previous January's feed bill is included as a change in accounts payable for the feed expenses.

Change in Accounts Receivable: Calculated by subtracting beginning year balances from end year balances. The January milk check for this December's marketing's compared with the previous January's check is included as a change in accounts receivable.

Change in Advanced Government Receipts: An annual increase in advanced government receipts is subtracted from cash income received because it represents income received in the current year for the next crop year and is a greater amount than was advanced the year before. Likewise, a decrease is added to cash government receipts because it represents funds earned for the current crop year but received in the prior year.

Change in Inventory: Increases in inventories of supplies and other purchased inputs are subtracted in computing accrual expenses because they represent purchased inputs not actually used during the year. Decreases in purchased inventories are added to expenses because they represent inputs purchased in a prior year and used this year.

Corporation: Business is organized under state corporation law. Corporation is owned, operated, and managed by members of one or more farm families and owner/operators are corporate employees. Corporate accounts are modified to exclude operator wages and other compensation from operating expenses for DFBS use.

Cost of Producing Milk, Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts, or some other accounting method to determine actual costs only associated with production of milk. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk. This resulting cost can be compared to the gross milk price as is the remaining expenses to be covered by the sale of milk only.

Cost of Term Debt: A weighted average of the cost of borrowed intermediate and long-term capital used on the farm. Calculated by multiplying the end of year principal of each loan by the interest rate for that loan, summing up the resulting amounts, and dividing by the total end of year amount of all the intermediate and long-term loans. This does not include accounts payable, operating debt or advanced government receipts.

Cows per Worker Equivalent; The average number of milking and dry cows divided by the number of worker equivalents for the farm. This is a measure of labor efficiency.

Culling Rate: Culling rate is calculated by dividing the number of animals that left the herd for culling purposes and that died, by the average number of milking and dry cows for the year.

Current (assets and liabilities): Farm inventories and operating capital that usually turnover annually, and the debt expected to be repaid within 12 months.

Current Portion: Principal due in the next year for intermediate and long-term debt.

Current Ratio: Measures the extent to which current farm assets, if liquidated, would cover current farm liabilities. Calculated as current farm assets at the end of the year divided by the current farm liabilities at the end of the year.

Dairy Cash-Crop (farm): Operating and managing this farm is the full-time occupation of one or more people, cropland is owned but crop sales exceed ten percent of accrual milk receipts.

Dairy Farm Renter: (dairy-renter) - Farm business owner/operator owns no tillable land and commonly rents all other farm real estate.

Dairy Grain and Concentrate: All grains, protein supplements, milk substitutes, minerals, vitamins purchased and fed to the dairy herd. Also included are any purchased inoculants or treatments utilized on forages in storage.

Dairy Records: DHI: Dairy Herd Improvement official milk production records. Owner Sampler: weights and samples are taken by farmer but not tested by DHI. Other: all other methods used to obtain periodic production data on individual cows. None: no milk production records on individual cows.

Dairy Roughage: All hay, silage, or other fodder purchased and fed to the dairy herd.

Death Rate: The percentage of the average number of milking and dry cows that died.

Debt Coverage Ratio: Measures the ability of the farm business to meet its planned debt payments scheduled for the year. The ratio shows the percentage of payments planned for the year that could have been make with the amount available for debt service for that year. The Debt Flow Coverage Ratio is determined by starting with net farm income (without appreciation), adding back in interest paid (accrual) and depreciation, subtracting net personal withdrawals from the farm and then dividing by the total planned debt service for the year.

Debt Per Cow: Total end-of-year debt divided by the end-of-year number of cows (owned and leased).

Debt to Asset Ratios: The debt to asset ratio is recorded by dividing liabilities by assets. The ratio is what percentage of total assets is debt.

Depreciation Expense Ratio: The percentage of total accrual receipts that is charged to depreciation expense (machinery and building).

Dry Matter: The amount or proportion of dry material that remains after all water is removed from feed. Commonly used to measure dry matter percent and tons of dry matter in feed.

Equity Capital: The farm operator/manager's owned capital or farm net worth.

Expansion Livestock: Purchased dairy cattle and other livestock that cause an increase in herd size from the beginning to the end of the year. It is a non-operating cost included in total expenses.

Farm Business Chart: The Farm Business Chart is a tool that can be used in analyzing a business by drawing a line through the figure in each column that represents the current level of management performance for each metric. The figure at the top of each column is the average of the group of farms represented by percent breakdown for the chart. If there are 10 rows, they would be the top 10% of the farms for that factor. The other figures in each column are the average for the second 10%, third 10%, etc. **Each column of the chart is independent of the others.** The farms that are in the top 10% for one factor would not necessarily be the same farms that make up the top 10% for any other factor. If there are 5 rows, then there would be 20% of farms in each row. If there are 4 rows, then would be 25% of farms in each row.

Farm Capital: Average total farm assets. Computed by adding beginning and end of year total farm assets and dividing by two.

Farm Debt Payments as Percent of Milk Sales: Amount of milk income committed to debt repayment, calculated by dividing planned debt payments by total milk receipts.

Farm Debt Payments Per Cow: Planned or scheduled debt payments per cow represent the repayment plan scheduled at the beginning of the year divided by the average number of cows for the year.

Financial Lease: A long-term non-cancelable contract giving the lessee use of an asset in exchange for a series of lease payments. The term of a financial lease usually covers a major portion of the economic life of the asset. The lease is a substitute for purchase. The lessor retains ownership of the asset.

Hay Crop: All hay land, including new seedings, harvested once or more per year as hay, baleage, or hay crop silage.

Hay Dry Matter: see Dry Matter.

Heifers: Female dairy replacements of all ages.

Hired Labor (expenses): All wages, non-wage compensation, payroll taxes, benefits, and perquisites paid to employees.

Hired Labor Expense as % of Milk Sales: The percentage of the gross milk receipts that is used for hired labor expense. Divide accrual hired labor expense by accrual milk sales multiplied by 100.

Hired Labor Expense per Hired Worker Equivalent: The total cost to the farm per hired worker equivalent. Divide accrual hired labor expense by number of hired plus family paid worker equivalents. One hired worker equivalent represents 2,760 hours of labor.

Income Statement: A complete and accurate account of accrual adjusted farm business receipts and expenses used to measure net income over a period such as one year or one month.

Intensive Grazing: The dairy herd is on pasture at least three months of the year, changing paddocks at least every three days and percent of forage from pasture is at least 30 percent.

Interest Expense Ratio: The percentage of total accrual receipts that is used for interest expense.

Intermediate (assets and liabilities): Farm business property and associated debt that is turned over from one to ten years.

Labor and Management Income: the return which farm operators receive for their labor and management used in operating the farm business. Appreciation is not included as part of the return to labor and management because it results from ownership of assets rather than management of the farm business. Labor and management income is calculated by deducting a charge for unpaid family labor and the opportunity cost of using equity capital, at a real interest rate of five percent, from net farm income excluding appreciation. The interest charge of five percent reflects the long-term average rate of return above inflation that a farmer might expect to earn in comparable risk investments.

Labor and Management Income Per Operator: Labor and Management income divided by the number of operator equivalents for the farm. Operator equivalents equals all operators with more than 12 months of labor entered plus the calculated sum of all months of labor entered for those operators with less than 12 months for the year divided by 12.

Labor Efficiency: Production capacity and output per worker. Primary measures are cows per worker equivalent and milk sold per worker equivalent.

Labor Force: Operator(s): Person or persons that run the farm and make the management decisions. An operator does not have to be a farm owner. Family Paid: all family members, excluding operators that are paid for working on the farm. Family Unpaid: all family members, excluding the operators, that are not paid for farm work performed. Hired: All other employees hired by the farm.

Liquidity: Ability of the business to generate cash to make debt payments or to convert assets to cash.

Leverage Ratio: The leverage ratio is the dollars of debt per dollar of equity, computed by dividing total farm liabilities by farm net worth.

Long-Term (assets and liabilities): Farm real estate and associated debt with typical life of ten or more years.

Milk Marketing (expenses): Milk hauling fees and charges, co-op dues, milk advertising and promotion expenses, over-base charges, other costs associated with the marketing of milk. Doesn't include gains or losses associated with forward contracting of milk prices or from participation in government milk price risk management programs.

Milk per Cow: Milk sold, pounds, for the year divided by the average number of cows for the year. A measure of production, comparing the total milk produced to the number of milking and dry cows for the year.

Milk Sold per Worker Equivalent: Total pounds of milk produced for the year divided by the number of worker equivalents for the year. A measure of labor efficiency combining number of cows per worker equivalent plus milk production per cow.

Milk Sold, Pounds: Total milk pounds produced in the calendar year. Summarized for the months of production, not based on when the milk that was paid for, with most farms receiving payment for the milk one month after it was produced.

Milking Frequency: 2X/day: all cows were milked two times per day for the entire year. 3X/day: all cows were milked three times per day for the entire year. Other: any combination of 2X, 3X, and more frequent milking.

Milking Systems: Bucket and Carry: milk is transferred manually from milking unit to pail to tank. Dumping Station: milk is dumped from milking unit into transfer station and pumped to tank. Pipeline: milking units are connected directly to milk transfer lines. Herringbone, parallel, parabone, and rotary parlors are identified specifically. Other parlors would include milking systems such as flat barn parlors and automatic milking systems.

Net Farm Income: The return to the farm operators and other unpaid family members for their labor, management, and equity capital. It is the farm family's net annual return from working, managing, financing, and owning the farm business. This is not a measure of cash available from the year's business operation.

Net Farm Income from Operations Ratio: Net farm income (without appreciation) divided by total accrual receipts.

Net Milk Income over Purchased Concentrate Per Cow: Milk receipts less milk marketing expense less purchased grain and concentrate expense, all divided by average number of cows.

Net Milk Income per Cow: Net farm income divided by the average number of cows. It is the farm family's net annual return from working, managing, financing, and owning the farm business on a per cow basis.

Net Milk Receipts: The mailbox price received by farmers before any farmer authorized assignment or deductions.

Net Worth: The value of assets less liabilities equal net worth. It is the equity the owner has in owned assets.

Nondairy Feed: All grain, concentrates, and roughage purchased and fed to nondairy livestock.

Nonfarm Noncash Capital: Gifts and inheritances of cattle and crops received by the farm owner/operator and included in inventory or used in the business during the year. They are deducted from growth in inventory and reduce accrual receipts because they came from an outside source the farm business.

Non tillable Pasture: Permanent or semi-permanent pastureland that is not be included in a regular crop rotation.

Operating Costs of Producing Milk: Are estimated by deducting non-milk accrual receipts from the total accrual operating expenses including expansion livestock purchased. These would be the operating costs that would have to be covered by the sale of milk only.

Operating Expense Ratio: The percentage of total accrual receipts that is used for operating expenses, excluding interest and depreciation.

Opportunity Cost: The cost or charge made for using a resource based on its value in its most likely alternative use. The opportunity cost of a farmer's labor and management is the value he/she would receive if employed in his/her most qualified alternative position.

Other Forage: All forage crops harvested but not included as hay crops or corn silage, e.g., oats, barley, and sudan grass harvested as roughage.

Other Livestock Expenses: All other dairy herd and livestock expenses not included in more specific categories. Other livestock expenses include but not limited to, hauling and livestock marketing commissions, ear tags, leg bands, neck bands, hand scrapers, etc.

Owner/Operator Resources Per Hundredweight: The total value of equity, management, and labor contributed to the farm from all owner/operators. This measure is calculated by adding the interest on equity capital to the value of labor and management for all owner/operators and dividing by the hundredweights of milk produced during the year.

Part-Time Dairy (farm): Dairy farming is the primary enterprise; cropland is owned but operating and managing this farm is not a full-time occupation for one or more people.

Partnership: Business is owned by two or more individuals who share profits according to their contribution of labor, management, and capital.

Personal Withdrawals and Family Expenditures Including Nonfarm Debt Payments: All the money removed from the farm business for personal or nonfarm use including family living expenses, owner health and life insurance, income taxes, nonfarm debt payments, and investments.

Premium: In milk marketing this typically refers to the amount paid for milk in addition to the minimum regulated price. Premiums may be paid to the producer or cooperative supplier of milk by a buyer depending on a variety of criteria such as milk quality, composition, quantity supplied, or services provided. They may also represent market supply/demand conditions not adequately accounted for in the regulated price.

Prepaid Expenses: Expenses that are paid for in one year but used in a different year that are non-physical items that couldn't be placed in inventory. The change in prepaid expenses is determined by subtracting the end of year balance from the beginning of year balance. The difference is added to the cash expense to adjust for change in prepaid expense. If current year funds were used to prepay a higher percent of the rent for the next year, the amount of excess of prepaid rent for the end of the current year vs the beginning of current year would be subtracted from the cash rent paid.

Producer Price Differential: Under Federal Order markets with multiple component pricing, it is the residual value (per hundredweight) of the pool after deducting component payments (protein, butterfat, and other solids) to producers. This residual value will vary between market orders and from month-to-month based on the utilization of the various classes and class price. It is possible that the PPD is negative at times if, for example, the class III price exceeds the class I price.

Profitability: The return or net income the owner/manager receives for using one or more of his/her resources in the farm business. True "economic profit" is what remains after deducting all costs including the opportunity costs of the owner/manager's labor, management, and equity capital.

Purchased Inputs Costs of Producing Milk: The operating costs of producing milk plus depreciation expense.

Repayment Analysis: An evaluation of the business' ability to make planned debt payments.

Replacement Livestock: Dairy cows, heifers and other livestock purchased to replace those that were culled or sold from the herd during the year. These purchases didn't increase herd size.

Return on Equity Capital: A measure of the net return remaining for the farmer's equity or owned capital after a charge has been made for the owner-operator's labor and management. The earnings or amount of net farm income allocated to labor and management is the opportunity cost of operators' labor and management estimated by the cooperators. A standard value per month is used to subtract a charge for unpaid family labor. Return on equity capital is calculated with and without appreciation. The rate of return on equity capital is determined by dividing the amount returned by the average farm net worth or equity capital.

Return per Hundredweight to Operator's Labor, Management and Capital: Gross milk receipts less purchased input costs less unpaid family labor, all divided by the total hundredweights of milk sold.

Return to all Capital: is calculated by adding interest paid to the return on equity capital and then dividing by the average farm assets to calculate the rate of return on total capital. Return to all Capital is calculated with and without appreciation and represents the return to all capital within the business.

Sell Rate: The percentage of the average number of milking and dry cows that were sold for culling reasons. Animals that were sold as replacement stock to other dairy farms are not included in this number.

Sole Proprietorship: Business is owned by one individual but there may be more than one operator.

Solvency: The extent or ability of assets to cover or pay liabilities. Debt/asset and leverage ratios are common measures of solvency.

Specialized Dairy Farm: A farm business where dairy farming is the primary enterprise, operating and managing this farm is a full-time occupation for one or more people and cropland is owned.

Statement of Owner Equity (reconciliation): This statement highlights how the net worth of the business changed over the year. It allows verification that the accrual income statement and market value balance sheets are interrelated and consistent. Identifies the causes of change in equity that occurred on the farm during the year, separated into retained earnings, contributed capital, or valuation equity.

Taxes (expenses): Real estate taxes (school, town, and county). Payroll taxes are included as a hired labor expense. Income and self-employment taxes are treated as a non-farm expenses.

Tillable Acres: All acres that are normally cropped including hay land that is pastured. Acres that are double cropped are counted once.

Tillable Pasture: Hay crop acreage currently used for grazing that could be tilled in a regular cropping sequence.

Total Costs of Producing Milk: Includes the operating costs of producing milk plus depreciation on machinery and buildings, the value of unpaid family labor, the value of operators' labor and management, and the interest charge for using equity capital.

Whole Farm Method: A procedure used to calculate costs of producing milk on dairy farms without using enterprise cost accounts. All non-milk receipts are assigned a cost equal to their sale value and deducted from total farm expenses to determine the costs of producing milk.

Worker Equivalent: The number of full-time worker equivalents to all the full and part-time people working throughout the year. Operator, family paid, family unpaid, and hired labor is included. Worker equivalents are determined by converting all work hours to full-time months (based on 230 hours per month) and dividing by 12. One worker equivalent equal 2,760 hours a year.

Working Capital: A theoretical measure of the amount of funds available to purchase inputs and inventory items after the sale of current farm assets and payment of all current farm liabilities. Calculated as current farm assets at the end of the year less current farm liabilities at the end of the year.

Working Capital as % of Total Expenses: A theoretical measure of the percent of the total accrual expenses that would be covered by the amount of funds available after the sale of current farms assets and the payments of all current farm liabilities. Calculated by current farm assets at year-end less current farm liabilities at end of year divided by total accrual expenses.

OTHER A.E.M. EXTENSION BULLETINS

EB No	Title	Fee (if applicable)	Author(s)
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2023-06	Improving Farmers Market Returns for Meat Vendors using Point-of-Sale Customer Data		Rigotti, L., LeRoux, M., & Schmit, T.
2023-05	Controlling Pests and Diseases Using Mesotunnels: Understanding Organic Cucurbit Crop Growers' Preferences and Choices		Cheng, N.,Zhang, W.,and Gleason, M.
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