Measuring Cow-Calf Ranch Economic and Financial Sustainability[[1]](#footnote-1)\*

Food service providers and retailers have communicated they are committed to sourcing beef from sustainable beef production and marketing systems. The Global Roundtable for Sustainable Beef is leading the effort to define principles and criteria for defining global sustainable beef that cover three broad areas including social, environmental and economic (GRSB).

Embracing the sustainability movement can be very positive for the beef sector if it meets consumer preferences. It allows for beef differentiation to enhance U.S. beef competition with commodity and imported beef. The historical decline in the national beef cow herd, number of feedyards and packing plants reflects an industry that is not competitive. In the 1980’s beef accounted for 40% of red meat and poultry sales. In 2015 it was 26%. Poultry has grown to 50% and pork has maintained 24% of per capita meat consumption. While poultry and pork exports have grown sharply beef stayed around 10% of total production. USDA’s June 2016 Outlook projected 27% of poultry, 21% of pork and 10% of beef will be exported in 2016.

Beef must become more competitive with poultry and pork or continue to lose the meat market share. Changes that address sustainability with participation of all in the beef supply chain and consumer preferences can be important to reverse this trend. The beef sector in the US is one of the few major beef exporting countries without a mandatory animal ID program. Access to many markets requires animal ID for source verification, a component of the sustainability efforts. Efforts to differentiate beef do not guarantee increasing beef competitiveness and may add to consumer confusion resulting in further erosion of the meat market share.

Proposed changes to make a production and marketing system need to be evaluated as to their business profitability or economic viability. Marketers that require restrictive production practices must compensate for these changes. Cost effective changes need numbers to show their profitability to encourage adoption. It’s clear that if a production system used by a ranch business is not profitable producers will cease production or just continue to produce for the commodity market. There is no financial incentive to maintain, invest or grow the business if it is not profitable.

The number of cow-calf operations and size create a challenge to bring change. Table 1. reports census data for the cow herd for 2012 show the size composition of the national cow herd. In 2012 of the 727,906 cow-calf producers, 91% of the beef herds have less than 100 cows. These part-time ranchers produce approximately 50 % of the calf crop. Only 37% have more than 200 cows. The average sized herd is 40 cows in an industry with great economies of herd size. Seventy-eight % of the beef cattle operations earn less than 25% of their income from farming (2012 Census). Only 6% of the beef cattle operations make more than 75% of their income from farming (2012 Census). It is nearly impossible for these small operations to generate a true profit. Or, in using GRSB terminology, these are **not economically viable businesses**.

USDA-ERS classifies farms by “gross income” that addresses the fact that small farms identified as limited resource, retirement, or residential/lifestyle farms accounts for 60 percent of total farms (USDA-ERS-2014). Measuring economic sustainability will necessarily focus on larger cow-calf operations. This paper addresses the opportunities and challenges for implementation of a proven methodology that measures financial and economic sustainability at the ranch level.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Table 1. U.S. Number Beef Cows by Herd Size - 2012 Census** | | | |  |  |
|  |  |  |  |  |  |
| Size of Herds | Number of | % by | Head of | % by | Average |
| Head | Operations | Herd Size | Beef Cows | Herd Size | Sized Herd Head |
| 1 to 49 | 594,222 | 81.6% | 8,625,186 | 29.8% | 15 |
| 50 to 99 | 71,184 | 9.8% | 4,744,396 | 16.4% | 67 |
|  |  |  |  |  |  |
| **Less than 100** | **665,406** | **91.4%** | **13,369,582** | **46.2%** | 20 |
|  |  |  |  |  |  |
| 100 to 199 | 36,428 | 5.0% | 4,796,037 | 16.6% | 132 |
|  |  |  |  |  |  |
| 200 to 499 | 20,564 | 2.8% | 5,853,297 | 20.2% | 285 |
|  |  |  |  |  |  |
| 500 or more | 5,508 | 0.8% | **4,937,637** | 17.1% | 896 |
|  |  |  |  |  |  |
| **200 or more** | **26,072** | **3.6%** | **10,790,934** | **37.3%** | 414 |
|  |  |  |  |  |  |
| **Total** | **727,906** |  | **28,956,553** |  | **40** |
| ------------------------------------ | | | | | |
| Source: USDA, National Agricultural Statistics Service, 2012 Census of Agriculture. | | | | | |

**Measuring Business Financial Sustainability – Profitability**

A ranch business profitability is reported in the **accrual adjusted income statement**, a measure of financial sustainability. However, an estimated 98% of ranchers report to IRS using cash accounting. Few of these ranches develop accrual adjusted statements to measure ranch profitability and return on assets (ROA). The methodology follows the Farm Financial Standards Council Guidelines (FFSC).

One of the realities is the cow-calf industry has incomplete and limited availability of information that measures and reports profitability. There are three sources of cow-calf profitability frequently used by the ranch press including Cattle Fax, Sterling Marketing Inc. and the Livestock Marketing Information Center (LMIC). These sources are **not full cost measures** of profitability as they do not include depreciation or

compensation for ranch owner and family labor and management. Working for nothing does not reflect business reality nor the fact family living withdrawals come from ranch revenue. Data on family living withdrawals is necessary to reconcile the business cash flow. These three published sources are not from ranch accrual adjusted financial statements. Their incomplete financial information cannot be used to calculate ROA, a fundamental measure of profitability. **If financial data is insufficient to measure ROA it means profit nor financial sustainability can be measured.**

Once the accrual adjusted financial statements are completed the FFSC financial position and performance measures recommended can be reported for liquidity, solvency, profitability, repayment capacity, and financial efficiency. This information is valuable for the ranchers and their lenders and would support the sustainability measuring efforts.

There is a limited number of cow-calf ranchers participating in Farm Business Associations. Associations do develop for their membership accrual adjusted financial statements and calculate ROA.

**Measuring Cow-Calf Ranch ROA**

The Internal Revenue Service (IRS) Schedule F, Profit or Loss From Farming, is the primary source of rancher financial reporting. **The Schedule F does not measure profitability of the business or economic sustainability.** Not accounting for inventory change, and changes in prepaid expenses, receivable or payables mean profitability is not measured. Following IRS rules means depreciation expense is distorted. Producers should calculate depreciation **using replacement cost** with reasonable useful lives and salvage values to measure profitability. Replacement heifers’ costs should not be expensed but capitalized. There is no compensation for owner operator or family labor and management.

Every other major participant in the beef supply chain above the ranch level uses **Generally Accepted Accounting Principles (GAAP)** for financial reporting that measures profitability. These margin segments know their costs and profit margins.

The methodology to measure financial or economic sustainability certainly needs to do more than use the IRS Schedule F cash based reported “cash profit or loss” to define profitability. This was addressed in the Standardized Performance Analysis (SPA) methodology adopted by the National Cattlemen Association (NCA) in 1991. The accounting methodology used in SPA followed FFS guidelines. These methodologies use accrual adjusted income measures of profitability. Farm Business Associations and USDA-ERS use the FFSC measures of financial performance and reporting.

There are some additional data required beyond what is necessary for compliance with Internal Revenue Service (IRS) cash reporting using the Schedule F to prepare the business accrual adjusted financial statements that measure profitability including:

* Beginning and ending fiscal year cattle and feed inventories.
* Cattle sales by category of raised and purchased – head, weight and total net sales revenue.
* Other data for accrual adjustments including prepaid expenses, accounts payable and receivable and accrued interest and taxes.
* Owner operator labor and management compensation equivalent to hired services. USDA uses the term “return to unpaid labor and management” in ROA calculations.
* Market value of capital assets for the balance sheet. Completing the IRS schedule F does not require a business balance sheet. The FFSC recommends using a market valued balance sheet which includes loan balances and payments due.

**Alternative to Current IRS Depreciation**

* **Replacement cost for capital assets** or depreciable assets including purchased breeding cattle, vehicles, machinery and equipment and land improvements including buildings.
* **Capital Asset Recovery Cost** is used as an alternative to IRS reported historical depreciation. Cost recovery is based on current **replacement cost** and estimated years of useful life and salvage value determines the use of the asset in the current fiscal year. Added replacement cattle cost must be revised at the beginning of the fiscal year using base value or estimated cost of raised replacement stock or actual cost capitalized (FFSC).

**Data to Measure Economic Profitability for Benchmarking**

* Raised feed at market value at the beginning of the feeding season.
* Land cash lease rates.
* Operating and non-real estate capital opportunity cost.

Measuring financial ROA must began by using the IRS compliance data ranchers are currently assembling annually. This takes some additional effort beyond tax reporting but knowing profitability is extremely important for any business. A business cannot measure financial performance or sustainability without this information. Suggested definitions of financial profitability and economic sustainability are as follows:

**Financial profitability** is measured by calculating the accrual adjusted revenue and expenses reported in the business accrual adjusted income statement or profit or loss (P&L) statement. Breeding stock replacement cost is calculated using either the Farm Financial Standards Council (FFSC) base value or the Generally Accepted Accounting Principles (GAAP) full cost absorption method. Depreciation of capital assets is based on replacement cost. Owner operator labor and management compensation used is equivalent to hired compensation. Family living withdrawals beyond this level are equity withdrawals. Interest is the cash paid and change in accrued interest. Financial net income or profitability is for a fiscal year and does not include real estate appreciation. Land appreciation cannot be realized if the assets are not sold. Measuring ROA is based on an ongoing business.

**Economic profitability** is measured with the same financial accrual adjusted information with the additional adjustments of an opportunity cost for land and improvements (cash lease minus property tax and maintenance cost not covered in a cash lease), raised feed at market value, and operating and non-real estate capital valued at opportunity cost. The opportunity cost of capital is a return expected on the next most profitable return on investment with similar risk. **Economic profitability is a measure of the consequence of entry or exit of the business.** The economic viable business is profitable as it considers the opportunity cost of resources. In cost-plus pricing, economic profitability is used to neutralize the difference in the land ownership, debt level and raised feed effects between operations. This is a necessity for bench marking ranch performance for comparative purpose.

**For benchmark reporting the best measure of sustainability is economic profitability** because the owner equity and repayment capacity position heavily influence individual business financial sustainability. For published benchmarks, comparative evaluation of ranch, systems or practice purpose profit measures are pre-income tax and do not include appreciation of land. Of course, the rancher can use both financial and economic measures of performance as done in SPA. Having accrual adjusted financial statements is the first priority for ranchers and their lenders.

With the volatility in commodity prices and production costs a **sustainable business** does not have to be profitable every year. A lender would like to see financial profitable performance for the past three years and a business plan that can demonstrate cash flow and profit potential for a few years. The business debt situation and repayment capacity are critical considerations for an ongoing or sustainable business. Over time a sustainable ranch business is growing in earned equity.

**Other Realities in Measuring Cow-Calf Financial Sustainability**

At this time, compliance and criteria are being chosen for the social, environmental dimensions of sustainability by the U.S. beef industry. It’s not clear what this means for current commodity producing ranchers producing around 94% of beef. Many will likely be in compliance with the added traceability and reporting. These are some realities of the cow-calf sector that create implementation challenges.

Developing an economically “sustainable beef supply chain” will likely focus on the 4% of ranchers that have more than 200 cows or larger ranchers that produce approximately 37% of the calves based on cow numbers. Expecting consumers to be willing to pay for beef at prices to make the small herds profitable is unrealistic. However, small producers can minimize losses by using cost effective practices and producing higher value calves consistent with sustainable beef criteria beyond the economic viability.

 “Midsize and large-scale family farms account for 8 percent of U.S. farms but 60 percent of the value of production. In contrast, small family farms make up 90 percent of the U.S. farm count but produce a 26-percent share of farm output.” (USDA-ERS-2014). The 8 percent would be the logic place to focus on measuring economic sustainability with case studies.

The ROA for farm assets is low. Speer used USA-ERS date to summarize ROA for 2010 to 2016 and the average ROA for farms with sales greater than $350,000 was 1.47%. ROA ranged from a high of 3.14% in 2013 to a low of -2.13% in 2016 (Speer, Nevil). The negative ROA being associated with low commodity prices and a price-cost squeeze in 2015 and 2016.

The beef supply chain has several production segments including cow-calf, growing (stocker or backgrounding), grass-fed or grain-fed feedyard finishing, packer and retailers. It’s most common for each segment to be under separate ownership. Transparency of financial performance information across the different segments of the beef production and marketing chain does not exist. The concentrated feedyard, packer and retail sectors do measure financial performance using GAAP accounting. Historical profitability information is not shared in a way to show ROA by segment. Of course, protecting this information is important to protect competitors positions.

Integrated benchmark production, financial and sustainability criteria will be important for the cow-calf through the grass-fed or feedyard finishing activities. Benchmarks for the social, environmental criteria are necessary to measure compliance.

Land investment is a major component in the cow-calf activity. Land investment alone can be $10,000 to $30,000 per breeding cow unit. In addition, there is investment in breeding stock, vehicles, machinery and equipment. The ROA needs to be calculated to get net margins per head into proper perspective for the different beef production and marketing segments. This investment reality is not effectively communicated but must be addressed in supply chain agreements. It’s why ROA information by segment in the supply chain is critical for wide spread participation in sustainability efforts led by beef buyers.

Retailers that wish to develop an integrated beef supply chain for “sustainable produced beef” can form **“cost-plus pricing”** arrangements across the production segments. Cost-plus pricing must address the investment and ROA reality in the different production segments of the beef supply chain.

Sustainable produced beef takes on the many characteristics of a branded beef supply chain. A great deal can be learned from their successes and failures. Historically the branded beef supply chains have had mixed success.

Planning for and measuring economic sustainability is often neglected. Published financial profitability information on branded beef integrated supply chains does not exist. Cow-calf producer takes on a level of price and production risk retaining ownership that can be avoided selling weaned calves. To minimize and share the cost of price and production risk must be addressed in supply chain agreements.

Traceability, production and resource management verification and measuring cost and profit are part of the supply chain insuring all sustainability goals are realized. Inspections, documentation and 3rd party verification to insure compliance are required. Ranchers will need one-on-one assistance for record keeping and complete accrual adjusted financial statement reporting as part of a program for participants in the sustainability beef supply chain. Reporting and compliance add to ranchers’ cost of production.

When beef buyers require restrictive production practices, added record keeping and 3rd party verification costs are increased. Measuring and communicating these costs is important for establishing the compensation for these added costs. There are added processing costs at the processing and marketing sector to maintain traceability information. Sellers of the “sustainable produced beef” will determine the willingness of consumers to pay for the added costs across the supply chain.

Determining the cattle prices and ROA level for ranchers to profitably participate to comply with environmental and social dimensions of sustainability is critical for success of the desired sustainable beef demands from the retail and international trade sectors. As noted there are well tested methodologies to measure financial and economic sustainability. It’s a matter of increasing their use and broadening the benchmark reporting.

Ranchers need to participate to protect and enhance their financial return while embracing the sustainable beef supply movement. It’s going to be an implementation challenge to measure “economically sustainable beef” at the ranch level with so few ranchers developing accrual adjusted financial statements to calculate ROA. Using “case ranch studies” much like 3rd party verification would be the place to start measuring economic sustainability to support benchmark reporting. There is no reason a service to do 3rd party verification cannot offer a service to assist ranchers and their CPA measure economic sustainability.

**If you don’t have the business financial data to calculate return on assets (ROA) then you cannot measure business profit, financial sustainability or viability.**

**References and Information and Decision Aid Sources:**

National Cattlemen's Beef Association - National Integrated Resource Management Coordinating Committee - Cow-Calf Financial Analysis Subcommittee. *NCA-IRM-Standardized Performance Analysis (NCA-IRM-SPA): Guidelines for Production and Financial Performance Analysis for the Cow-Calf Producer: Cow-Calf SPATM*. Texas Agricultural Extension Service, Texas A&M University, Department of Agricultural Economics, August 15, 1991. For Cow-calf SPA information see. SPA information web site <http://agrisk.tamu.edu> .

Farm Financial Standards Task Force. *Recommendations of the Farm Financial Standards Task Force: Financial Guidelines for Agricultural Producers*. Original 1991 Revised 2016, Farm Financial Standards Council, website [www.FFSC.org](http://www.FFSC.org).

Speer, Nevil “Ag’s Return on Assets: Where do you Stand?” BEEF Magazine,  
 <http://www.beefmagazine.com/marketing/ag-s-return-assets-where-do-you-stand> . 12/29/2016

https://ssl.gstatic.com/ui/v1/icons/mail/images/cleardot.gif

USDA-ERS “Farm Income and Wealth Statistics”,

Documentation for the Farm Sector Financial Ratios

# Structure and Finances of U.S. Farms: Family Farm Report

# https://www.ers.usda.gov/data-products/farm-income-and-wealth-statistics

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# America’s Diverse Family Farms– 2016 Edition – Economic Information Bulletin Number 164

# <https://www.ers.usda.gov/amber-waves/2016/>

Global Round Table for Sustainable Beef, (GRSB), “Principles & Criteria for Defining Global Sustainable Beef”, www.GRSBeef.org

University of Minnesota Extension, Center for Farm Financial Management, FINPACK software  [www.extension.umn.edu](http://www.extension.umn.edu)

Farm Business Associations have web sites in a number of states including: ND, NE, KS, IA, IL and MN.

**Decision Aid Sources for Beef Cattle**

Texas A&M University – Department of Agricultural Economics B[eef Cattle Decision Aids](http://agecoext.tamu.edu/files/2013/08/DecisionAids.pdf)

http://agecoext.tamu.edu/resources/decisionaids/beef

Oklahoma State University

<http://www.agecon.okstate.edu.extension/>

University of Nebraska - Lincoln Beef Website

http://www.beef.unl.edu/

Kansas State University – Farm Management

<http://www.ksre.k-state.edu/agriculture/farmmanagement/>

1. \*Prepared by Dr. Jim McGrann, Professor Emeritus, Texas A&M University, 1/15/2017 [↑](#footnote-ref-1)