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## Abstract

Farm enterprise analysis is a term that has traditionally been used to describe the process of determining costs associated with farm business enterprises and enterprise profitability. A key challenge to those who would know their costs has been the lack of guidance on cost accounting principles and the application of those principles to agriculture. However, that recently changed with the publication of the Farm Financial Standards Council's Management Accounting Principles for Agricultural Producers, which has led to questions about the usefulness of enterprise analysis. The differences between the two approaches to determining costs for farm business enterprises are discussed as they relate to the usefulness of the output to managers for decision making.

## Farm Enterprise Analysis: Has It Lost Its Usefulness?

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## Introduction

In the 2008 edition of their popular farm management textbook Kay, Edwards, and Duffy tell their readers that, “enterprise analysis consists of allocating all income and expenses among the individual enterprises being carried out (page 330).” Viewed in these terms, farm enterprise analysis is the farm version or farm alternative to the product cost accounting described in introductory cost accounting texts (See Horngren, Datar, and Foster for example.). For well over a half century the term enterprise analysis has shown up in farm management and farm accounting texts. These texts have typically provided a fairly brief discussion of the subject, a chapter at most. Often times these texts have focused more on raising issues related to the practice rather than resolving them.

In 2008 the Farm Financial Standards Council (FFSC) published *Management Accounting Guidelines for Agricultural Producers* (FFSC Guidelines). The issuance of that set of recommendations is likely to lead to questions about traditional farm enterprise analysis and its continuing role in agricultural accounting, such as: How does management accounting differ from farm enterprise analysis, if it indeed differs? And will management accounting supplant farm enterprise analysis or complement it? Or, can farm enterprise analysis practitioners build on what they already know by familiarizing themselves with management accounting principles? And, if so, when is management accounting likely to be more useful than enterprise analysis? The authors use historical perspective and a brief comparison of enterprise analysis and management accounting concepts to posit our own conclusions about the answers to the aforementioned questions and to provide information intended to help readers begin to think about whether a change from enterprise accounting to management accounting will benefit their farm businesses.

## Historical References to Enterprise Accounting and Analysis

The oldest farm management text reviewed here was published in 1947 (Hopkins). It was typical of other publications of that era when the term enterprise always referred to a crop or livestock production activity. More recent texts appear to broaden the meaning of the term. Boehlje and Eidman, for instance, identified three types: production, service, and marketing enterprises. The glossary in the 2004 edition of Olson’s new farm management text defines an enterprise as a common name for any activity and identifies corn, dairy, or machinery as specific examples.

Hopkins’ 1947 text included back to back sections discussing first enterprise analysis followed by cost accounting. The discussion of enterprise analysis focused on measures of returns by enterprise, such as sales and changes in inventory, in addition to non-financial information such as yields per acre and the input of seed, fertilizer, and feed compared to the amounts produced. Hopkins described cost accounting as another method (an alternative to enterprise analysis), which might be used to evaluate the results of the different enterprises by computing the total cost per unit of product and the profit from each crop or livestock enterprise. It is interesting to note that he advised farmers against using cost accounting in this text. He said (page 401), “We may conclude that the cost accounts seldom show satisfactory results that could not have been obtained more easily by other methods. Often they are seriously misleading. Much more information can be obtained from financial records and the study of enterprise efficiency than from cost accounts, and the information is in a more useable form.”

The last chapter in a 1949 text about farm records by Hopkins and Heady addresses the topic of enterprise accounts and accounting. They contend that there are indeed many important uses and reasons for keeping such records. They conclude that the principles involved in enterprise accounting are exactly the same as for financial and production records. On page 283 they stated that, “Enterprise accounts do not call for unique accounting principles. The procedures and calculations must parallel the procedures outlined for production and financial recordkeeping if the end results and interpretations are to be correct. The enterprise accounts simply represent application of accounting principles to one portion of the business.”

There are a number of issues which complicate enterprise accounting. Hopkins and Heady is notable and still interesting reading for their thoughtful discussion of such complicating factors as complementary and supplementary enterprises, joint products, overhead cost allocation, byproduct cost, and opportunity cost.

James and Stoneberg included a whole chapter on the analysis of individual farm enterprises in their farm accounting text first published in the 1970s. This text is notable for its examples of enterprise analyses for a swine enterprise and also for a crop enterprise, for its detailed “how to” recommendations with respect to a few selected enterprise accounting and analysis issues, and for its discussion of the ways enterprise analysis can help the farm manager or decision maker.

Boehlje and Eidman in the 1980s observed (page 79) that, “Relatively few farmers are willing to break down the total business into a complete list of enterprises and to maintain accounts for all those enterprises. Many farmers using enterprise accounts keep the detailed information on a few major production enterprises and lump the rest of the business into a farm overhead enterprise.” Boehlje and Eidman recommended weighing added costs against added returns when deciding to what extent to account for an enterprise and observed that many farmers kept enterprise detail on only major enterprises as an alternative to collecting detailed cost and return information on every enterprise. It appears to us that this continues to be excellent advice.

We came to the following conclusions based on our review of the aforementioned texts: First, even taken as a whole, there just hasn't been very much written on the topic in farm accounting and farm management textbooks over the last approximately 50 years. Second, the “complicating” issues discussed in these texts are just as pertinent today as they were when the texts were written. For example, when a product such as a beef feeder calf, which could be sold, is transferred instead to the farm feedlot enterprise, should it be transferred in the enterprise accounts at its cost or its fair market value? That is just one example of several issues observed in one text or another during our literature review which proved challenging for the Farm Financial Standards Council to resolve. Third, the existing literature isn't consistent at all in its treatment of the enterprise analysis topic and recommendations about how to do it correctly run the gamut of possibilities.

We looked at other published information on enterprise analysis including Extension publications and the enterprise summary reports of state farm management associations. Standardized Performance Analysis (SPA), which was initially developed in the 1990s to do enterprise analysis of the beef cow-calf enterprise, is an example of a program which has helped beef producers increase their understanding of cow-calf enterprise costs and returns. It is also a program that is well-documented by Extension publications with information readily available on the Internet (McGrann). “SPA is an analysis tool, not an accounting or production record system. Most Producers already have the necessary data to complete the SPA analysis.” (McGrann, Jones, and McCorkle, page 1) IRS tax schedules are suggested as the source of income and expense information for doing an SPA analysis of the cow-calf enterprise. Contrast this with an article by Shultis, who said that enterprise accounting should be accomplished within a double entry accounting system. State farm

management associations, such as the Kansas Farm Management Association, have contributed significantly to our knowledge of farm enterprise costs, but these associations don't appear to be a source of information on how to do enterprise accounting and analysis for individual farmers (other than for association members). From our perspective, the other published information we have reviewed provided additional support for the conclusions we drew from a review of farm accounting and farm management texts.

### What Is Management Accounting?

“Management accounting measures and reports financial information, as well as other types of information that assists managers in fulfilling the goals of the organization (FFSC Guidelines, page 8).” This typically might include determining costs and returns associated with particular enterprises, although it is by no means limited to that type of management information. Enterprise costs and returns are more likely to be a byproduct of management accounting rather than the primary product when doing enterprise analysis. Management accounting is “about obtaining knowledge of those segments of the business on which management wishes to focus its attention (FFSC Guidelines, page 12).” These need not be limited to crop and livestock enterprises.

“Enterprise analysis commonly incorporates both accounting information and economic data, such as the opportunity cost of unpaid family labor and the opportunity cost of owned land rental, in the analysis. Fundamentally, however, enterprise analysis provides an allocation of revenues and costs to various production enterprises. Enterprise analysis has a number of similarities with the segment-based reporting and analysis in management accounting. However, some significant differences allow users of this segment-based information to take a more detailed look at cost drivers and resource management in an agricultural operation. The differences include:

1. A primary focus on capturing actual cost data for production, thereby allowing managers to focus on actual performance on their operation;
2. An accumulation of costs at levels where they are controllable by management and are directly related to the activities that create them; and
3. An aggregation of costs and revenues at levels of the organization where profitability can be measured in absolute terms and relative to the assets employed to generate those revenues (FFSC Guidelines, page 8).”

The FFSC guidelines are based on five fundamental concepts of management accounting and those five concepts are paraphrased presented from the guidelines in the following paragraphs (FFSC Guidelines, page 10).

First, cost information must be organized in a manner that allows costs to be associated with “cost objects” that are controllable by management. The guidelines require that costs be classified in an accounting system at the time those costs are incurred and not at the end of an accounting period. Once that classification has been made, then the process involves accumulating, allocating, and reporting those costs. Responsibility centers are used to organize costs in a manner that allows management to be responsible for activities that fall under a particular center. In terms of costs, responsibility centers are called “cost centers,” and provide a designation in which managers can control costs through the control of inputs. In contrast, sales and other revenue generating activities would not be included in a cost center.

Second, cost accumulation and reporting should be done at a level in which costs are controllable and where management responsibility exists. For example, the allocation of repair costs as an individual line item to one or more crop enterprises, as is commonly done in enterprise analysis, does not allocate those costs to a responsibility center in which management control can be exercised. The machinery cost manager needs to know what it costs to provide machinery services to the farm’s production activities and not just his machinery cost per acre of corn in order to manage machinery cost.

Third, effective cost analysis and management requires cost information be organized in a manner that reflects the key drivers of the respective costs. This allows the farm manager to more easily associate cause and effect and facilitates taking corrective action when particular costs need attention. Key cost drivers may not in fact be the enterprises on the farm.

Fourth, costs must be matched to revenue in a manner that allows for the consistent and accurate measurement of margins and profits. Some “revenue” items are actually “cost reducers” rather than one of the core revenue components for a business. Consequently, those cost reducers should be reported as a reduction in production costs rather than as a component of revenue. The FFSC management accounting guidelines describe a number of different types of revenue transactions which may be cost reducers (FFSC Guidelines, page 59).

For example, using excess machinery capacity to do custom hire work more accurately reduces the cost of machinery provided to the farming operation than represents a component of revenue. This is particularly the case when custom hire is not one of the primary revenue-generating activities of the business. Of course, if one of the primary revenue-generating activities of the business is custom hire, then the revenue generated from custom hire should be a component of revenue.

Fifth, any business that involves the manufacture of a product must accumulate costs as the ultimate product moves through the business as a “flow”. Those costs start as raw materials (i.e., seed, chemicals, purchased feeding animals, etc.), then move to “work in process” (i.e., growing crops and growing feeder livestock), and finally to “finished goods” (i.e., harvested grain and finished slaughter animals ready for market). Tracking costs accumulated in all three categories of inventory is needed in order for management decisions to be made to control those costs throughout the production “flow” and not as an afterthought once the finished goods have been sold. Of course, a business with multi-period products such as finishing feeder livestock will likely have inventories in all three categories at any given time.

Although all five concepts make sense when a decision maker is contemplating conceptual alternatives for improving cost control, in practice the concepts are usually absent from most agricultural accounting systems. Their absence is due primarily to the use of cash accounting to provide information for tax reporting purposes. That information is then converted to accrual-adjusted figures to generate management information and financial statements.

The concepts are also absent because most agricultural operations do not capture and organize cost information at the levels indentified above. Instead, the tendency is to accumulate all cash disbursements in general expense categories (i.e., seed, chemicals, feed, etc.) and then perform overall accrual adjustments that include marking the inventories to market values to calculate accrual-adjusted measure(s) of profitability.

An overriding reason management accounting is seldom seen in an agricultural business is that few farm businesses are organized in a manner that can benefit from a sophisticated management accounting system. A core premise in management accounting is the desire to evaluate performance of personnel who are accountable for various responsibility centers. Many producers attending training on this

subject confess they do not have clearly defined organizational structures, no clear division of roles, no written job descriptions, and no performance appraisals. It is meaningless to design a cost accounting system that tracks performance in responsibility centers, when the responsibility centers and their respective managers are not clearly defined. After being exposed to management accounting training, they often realize they need to adjust their management systems to refine accountability for decision making and performance measurement.

### When is management accounting more useful than enterprise analysis?

Enterprise analysis and management accounting are different but not competing concepts. Although enterprise analysis is useful for investors, lenders, and one-person management teams, it provides little useful information to responsibility center managers. Investors and lenders are normally concerned solely about the “bottom line” or profitability. Business managers are concerned about responsibility centers because they want to know performance relative to center goals, decision roles, strategies to follow, and resources needed. They also want to know performance results for each responsibility center and the opportunities for improvement.

There are at least four major differences between management accounting and enterprise analysis in terms of the usefulness of the output generated for managers to use in decision making. The first major difference between management accounting and enterprise analysis in terms of usefulness is the imprecision of the costs accumulated and allocated when using enterprise analysis compared to management accounting. The imprecision can occur from several sources. An allocation of a cash expense account at the end of an accounting period will likely omit adjustments, such as “cost reducers,” which can overstate the total cost reported. Also, an arbitrary allocation of an indirect cash expense during check entry or at the end of an accounting period, as is frequently done with enterprise analysis, is less precise than recording costs using accrual, cost accounting principles, as those costs are incurred during the accounting period. Furthermore, costs included for enterprise analysis often are taken from the records used for tax reporting purposes. For example, the depreciation reported for tax reporting purposes may very likely include depreciation amounts that are the result of fast write-off provisions allowed by the Internal Revenue Service at the time of the cost allocation, as opposed to an economic depreciation figure.

The second major difference arises due to the mismatch that often occurs when the cost allocation in enterprise analysis is made to units for which management has little or no control, compared to the cost allocation in management accounting to cost centers that are related to units for which management can exercise control. For example, costs for crops in enterprise analysis are typically allocated to the crop enterprise and then reported on the basis of costs per acre and ultimately distributed per bushel, ton, or hundredweight. This later allocation facilitates comparisons to available market prices for crops, but it essentially circumvents the benefit that can be achieved through improved cost control. In that instance, cost control and marketing decisions are intermingled. Whereas, when cost centers are used with management accounting, the focus of management is solely on cost control and the analysis and subsequent decision making can be more direct and effective. Marketing and pricing decisions can then be associated with the respective revenue center.

The third major difference between management accounting and enterprise analysis in terms of usefulness for decision making is the direct manner in which management accounting accumulates costs throughout the “flow” of a product as it moves through the production process. This cost accumulation process is more accurate, transparent, and timely than using market values to record inventories at the end of an accounting period. In enterprise analysis the change in inventory values during the year is typically used to adjust gross revenues and expenses for each enterprise. The management accounting principles used when reporting inventories as raw materials, work in process, and finished products more accurately report those costs in a manner that can then be used by management for decision making throughout the production cycle, rather than on a whole farm basis after the production cycle has been completed. While enterprise analysis usually relies on external, market-value adjustments for generating financial statements, management accounting can incorporate actual product cost accumulations on balance sheets and accurately match finished goods costs with revenue on income statements.

The fourth major difference is the separation of product costs and period costs when using management accounting and the decision concerning what is included as product cost when using enterprise analysis. Period costs are outlays which are not directly traceable to a product. In management accounting the general administrative, selling, and financing expenses of a business are generally considered period costs and are recognized as an expense in the period expended

rather than accumulated as a product cost and recognized when the product is sold. The use of cost centers when using management accounting enables the decision maker to separate product costs from period costs and then make decisions accordingly. Enterprise analysis would include the estimated portion of all reportable costs for tax purposes to a particular enterprise; whereas, selling, finance, and general costs may not be controllable at the enterprise or product level.

### Obstacles to Adoption of Management Accounting at the Farm Level?

Pork, beef, corn, and soybean commodity organizations provided much of the early impetus for the FFSC's management accounting (MA) project and the seed money to support the efforts of the council (FFSC History). Without strong interest and financial support from grower organizations the FFSC's management accounting project, which led to the publication of Management Accounting Guidelines for Agricultural Producers, likely would never have been started.

Long before the FFSC settled on its final MA recommendations, members of the Task Force were receiving demands for presentations concerning how MA could be implemented in the agricultural industry. Hofing, Wittman, Gillings, McGrann, and others made numerous presentations about the MA project (FFSC History, page 11).

"An invaluable exercise to the council's MA development efforts was a \$40,000 Risk Management Agency grant that funded a test drive of the Council's early concepts amongst a group of Pacific Northwest grain producers. Results from this project provided invaluable feedback on the content as well as strategies for furthering adoption of MA. It also gave producers confidence that many of the concepts being addressed in the MA producer were capable of being put into practice, albeit not without considerable investment in education and professional support (FFSC History, page 12)."

There are a number of obstacles that have been identified by producers as to why they do not use cost accounting. In a workshop with producers learning about Management Accounting, participants listed the following as examples of obstacles to implementation:

- Procrastination – many producers know they should implement management accounting, but have not made its implementation a priority because they perceive it as "too complicated" so they never start.

- Many producers use the "shoebox approach" and use the cash basis for tax purposes only.
- There are a limited number of software programs available to facilitate the implementation.
- There can be a major challenge just getting everyone involved with a farm or ranch operation to agree to implement such a system, and the implementation does not work unless everyone involved in the management team agrees to the discipline needed on information input.
- Another stumbling block has been the allocation of costs to enterprises or products.
- The need to perform timely entries for not only direct, but also indirect or overhead (i.e., depreciation expense) costs can be an obstacle to implementation.
- There has been an historical focus on cash accounting for tax purposes rather than accrual basis of accounting.
- Many producers have a production focus rather than a financial management focus, so the implementation is not a priority.

These bulleted observations suggest that management accounting may be even less likely to be adopted by large numbers of farmers than enterprise analysis because of the increased rigor associated with management accounting. Consider the Guidelines message, "Implementation of a segment-based management accounting system requires a more structured process, a greater level of traditional accounting understanding, and often a more customized accounting software system than would be required for the more typical recordkeeping and financial analysis conducted on many agriculture operations (FFSC Guidelines, page 9)." A major obstacle to adoption of management accounting at the farm level is the requirement to use accrual, cost-based accounting records.

But there is reason to expect that as farms increase in size and complexity the appeal of enterprise accounting and analysis will grow as well. "Commercial ag operations are today characterized by an increasingly complex set of decisions related to strategic, operational, and financial management. For most producers who have reached a level of complexity in their operations that they would be classified as "commercial" producers, we believe the costs and efforts of implementation will be more than offset by better quality information to make decisions in their business (FFSC Guidelines, page 9)." First, farmers who had already adopted enterprise analysis oftentimes were on the front lines of those encouraging the FFSC to work on management accounting and they are likely to be among the first to

recognize the benefits of the more refined management accounting approach.

### Has Farm Enterprise Analysis Lost Its Usefulness?

We believe the answer to that question is no. Most producers who currently use enterprise analysis will likely continue to use it, because the underlying premise when using management accounting is the user will convert his or her farm tax and financial accounting system to an accrual, cost accounting system. It will still meet their needs for enterprise costs and returns information. However, one need not be “all in” in terms of adopting management accounting in order to obtain significant benefits from management accounting. Many producers would likely benefit from rethinking whether they can gain a better understanding of how they manage costs and whether they can improve overall farm performance by focusing on “segments” of their business defined in the management accounting way rather than the traditional crop or livestock enterprise.

Management accounting should appeal to larger, more complex farm operations including multi-product or multi-manager farms or farms which produce multi-period products. Many smaller, single manager farms with fewer products who apply Boehlje and Eidman’s added cost-added benefit principle may well determine as Hopkins did in 1947 that the additional costs in terms of money and time may exceed

the additional benefits of management accounting information. However, the FFSC contends that, “All but the smallest and simplest organizations can likely improve overall performance by focusing on segments of their business (FFSC Guidelines, page 14).” For that reason we believe the FFSC Guidelines are well worth study by any farmer interested in improving farm financial performance. Farms that don’t perceive net added benefits from changing their existing enterprise accounting and analysis system to a management accounting and analysis will also likely find the FFSC’s management accounting recommendations a valuable resource, because its recommendations address many “complicating issues” typically encountered in both enterprise and management accounting.

Hence, the FFSC management accounting guidelines will likely complement the enterprise analysis that is currently being used in production agriculture, but not supplant it. It will also enable practitioners who are already using some version of a management accounting system to further refine their systems to adapt it to more fully reflect the agricultural nature of their products. By making those adaptations, the managers of those firms will improve profitability by further segmenting management decisions. This will enable them to focus more directly and clearly on particular responsibility centers and then improve decision making through improvements in cost control, marketing, investment analysis, etc.

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