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Profitability Determinants in South Dakota's Beef Cow/Calf Enterprise

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PROFITABILITY DETERMINANTS IN SOUTH DAKOTA'S BEEF COW/CALF ENTERPRISE

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This thesis is approved as a creditable and independent investigation by a candidate for the Master of Economics degree and is acceptable for meeting the thesis requirements for this degree. Acceptance of this thesis does not imply that the conclusions reached by the candidate are necessarily the conclusions of the major department.

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Abstract

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South Dakota beef cow/calf producers who had completed a 2000 Standardized Performance Analysis were surveyed and interviewed to gain a better understanding of what personal characteristics and management factors may help determine profitability. Low, medium and high profitability categories were defined by calculating one standard deviation above or below a mean ROA. Producers were unaware of their profitability category at the time of the interview. Statistically significant differences were found in reference to the involvement of the operator in physical labor and management functions, and in the percentage of other family members involved in the management functions in the enterprise. Producers' views on their opportunities and threats regarding their beef cow/calf operations were also statistically correlated. High profit producers appeared to be more conscious of keeping feed costs low through their use of training courses or materials, decision-making techniques, goal setting, and record keeping. No significant differences were found in relation to risk taking, intuition, marketing tools or management style.

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Introduction

Introduction and Problem Statement

The beef industry with 1.8 million head of cattle in 2000 comprised South Dakota's largest agricultural sector. South Dakota also ranked as one of the top ten states for all cattle and calves, beef cows that calved, and cattle in feed-all feedlots (SDA Bulletin, 2000). It is important to understand what factors contribute to the profitability of the beef cow/calf enterprise as it is an essential facet of South Dakota's agriculture economy.

From 1970 to 2000, half of South Dakota's beef producers went out of business (USDA-SDASS, 2001). During that time period, the general view of the beef industry concluded that the profitability question of the beef industry could be solved with increased net income. Given that the same theory may still be true today, how do producers increase their net incomes? Various attempts to solve the profitability problem have included increasing production, conducting financial analyses, and keeping better records (Dunn, 2001).

Studies from Texas, South Dakota, Iowa, and Illinois have analyzed both the production and financial factors that affect profitability. Although these studies help identify some differences among the producers, the question still remains as to why the differences exist. Standardized Performance Analysis (SPA) is a tool that researchers may use to assess production and financial

factors that affect profitability. SPA data does not explain why high profit producers have less investment per cow or why they have higher per calf revenue as found in Dunn's research. No significant difference between the high, medium and low profitability categories for weaning weight or pregnancy percentages exists (Dunn, 2000).

Unfortunately, SPA is unable to account for all of the factors, such as personal characteristics and management, which may affect profitability within the beef cow/calf enterprise. More information may be gained when SPA data is used in conjunction with survey data and personal interviews.

This research will contribute to the literature through its findings regarding management factors and personal characteristics of beef cow/calf operators. SPA also uses financial and production measurement tools to determine if beef cow/calf producers are high, medium or low profit enterprises. These tools not only permit comparison of the similarities between the enterprises and the operators within the various profitability categories, but also assess the differences between those categories. The researcher will survey beef cow/calf producers from South Dakota via personal interviews. These producers will be classified as high, medium or low profit enterprises according to the guidelines established in prior SPA research.

Objectives

The overall objective of this research was to identify profitability determinants of the South Dakota beef cow/calf enterprise.

The specific objectives were:

1) To use SPA data of South Dakota beef cow/calf producers as a foundation to determine the high, medium and low profitability categories in the beef enterprise;
2) To identify the personal characteristics of South Dakota's beef cow/calf producers in the high, medium, and low profitability categories of SPA; and
3) To identify the management factors of South Dakota's beef cow/calf producers in the high, medium, and low profitability categories of SPA.

Justification

The results of this research may impact various sectors of the beef industry. The most obvious sector is the cow/calf producer. This research will offer insight regarding the profitability determinants other than the size of the operation, financial ratios, and investment dollars. Such determinants include how a cow/calf producer makes management decisions, sets goals, and determines the proper marketing strategy. Extension Specialists and special interest groups, such as the South Dakota Cattleman's Association, may use the

results to develop educational programs tailored to the cow/calf producer's interests and needs. This study may also influence course content at land grant universities.

Organization of This Research

The methodology section is contained in Chapter II. Chapter III includes literature review, and chapter IV describes data analysis techniques. Conclusions, implications of this research, and recommendations for further study complete this thesis in Chapter V.

Chapter II

Research Methodology

The researcher developed a survey questionnaire in summer 2001. Primary data was collected through personal interviews during summer and fall 2001. This chapter explains the methods used to conduct this research. The research methods included data collection, survey construction, and analysis techniques.

Data Collection

The research of Barry H. Dunn, a professor at South Dakota State University, was pivotal to this research. Dunn's research was used to achieve objective one, which was to use SPA data to determine profitability categories of South Dakota's beef cow/calf enterprise. Dunn analyzed SPA measurements from 148 privately owned cow/calf producers from eight states in the Northern Great Plains. The data set was divided into three profitability categories: high, medium and low. Return on assets (ROA), calculated by annual net income divided by average total assets, was used as the dependent variable in Dunn's study. The profitability groups were classified by one standard deviation from the mean (2000).

Nineteen producers from South Dakota completed a Standardized Performance Analysis in 2000. These producers were self selecting and the

census population was not random or randomized. The profitability category classification as established in Dunn's research was also used in this research. Because the classification guidelines established in Dunn's research, (one standard deviation above or below a mean ROA), were used in this research not all producers in the medium profitability category earned a positive ROA. Of those nineteen producers from South Dakota, two were low profit producers, ten were medium profit producers and seven were high profit producers. The ROA measurements for the three profitability categories are shown in Table 2.1.

Table 2.1 ROA Ranges for Low, Medium and High Profit Producers

Profitability Category	Range of ROA		
Low	-9.35%	to	-6.7%
Medium	-6.7%	to	12.9%
High	12.90%	to	27.57%

*Categories defined by 1 std dev from the mean

**Mean ROA 3.1% and std dev 9.8%

To achieve objectives two and three, a survey questionnaire was administered through personal interviews. All beef cow/calf producers from South Dakota that completed a 2000 SPA with the assistance of Eddie Hamilton, South Dakota State University were interviewed. This method of data collection was chosen to add richer, more developed data to current and previous research. Due to the small census population, nineteen, this data collection technique is crucial since mail surveys have low response rates. Interviews are research tools that serve as an effective means of learning about people's thoughts, experiences, and feelings, and they allow the researcher to gather

more details and develop a better understanding of what interviewees claim. Semi-standardized interview methods were used to conduct the interviews. A semi-standardized interview is recognized as one that:

> ...involves the implementation of a number of predetermined questions and/or special topics. These questions are typically asked of each interviewee in a systematic and consistent order, but the interviewers are allowed freedom to digress; that is, the interviewers are permitted (in fact expected) to probe far beyond the answers to their prepared and standardized questions (Berg, 2001:70).

The researcher may also gain insight from how the interviewee responds to the questions. This may provide information for current research or for further studies. As opposed to mail surveys, where researchers must assume that characteristics or beliefs can be accurately measured through self-reports (Fink and Kosecoff, 1985; Marshall and Rossman, 1999; Rubin and Rubin, 1995), the interview method allows researchers to present a more uniform set of data to clarify any confusion concerning questions or responses. This type of data is a resource that provides:

> ... well-grounded, rich descriptions and explanations of processes in identifiable local contexts. Then, too, good qualitative data are more likely to lead to serendipitous findings and to new integrations; they help researchers to get beyond initial conceptions and to generate or revise conceptual frameworks. Words, especially organized into incidents or stories, have a concrete, vivid, meaningful flavor that often proves far more convincing to a reader... (Miles and Huberman, 1994:1).

By using triangulation, researchers obtain a better, more substantive picture of reality. Triangulation is the use of multiple research methods. Researchers also gain a more complete array of theoretical concepts and a means of verifying many of these elements (Berg, 2001). The researcher used triangulation in this research by using both qualitative and quantitative questions. Qualitative methods have advantages in research. One major advantage to using qualitative methods is the ability to produce a wealth of information from a smaller number of people. This method of research increases understanding of information, but reduces the researcher's ability to generalize. Quantitative research also has advantages. Standardized measures of predetermined responses allow for easier statistical analysis and comparison. Researchers have the ability to gather more information through many more participants. Qualitative research methods can be used to help clarify areas of uncertainty from quantitative methods (Patton, 1990). Johnson recommended that farm management researchers: a) redevelop a multidisciplinary, holistic approach to management issues, b) summarize and integrate management concepts from several disciplines and focus on variables that are controllable by managers, and c) to conduct a combination of case studies and large scale empirical studies of farm management behavior (1988).

Survey Construction

The survey, developed with the assistance of Carol Cumber, advisor, consisted of fifty-seven questions and contained both qualitative and quantitative components. How the researcher asked each question is listed in italics after each question on the survey (see Appendix A for a copy of the complete survey). An individual interview schedule was established with the assistance of Eddie Hamilton, Veterinary Science, and Julie Walker, Beef Extension Specialist, both of South Dakota State University. The interviews took place in a variety of locations: producers' homes, veterinarian's office, cafes, and community meeting rooms. The interviews conducted during the fall of 2001 were tape recorded and transcribed. Producers were given handouts on five questions to help them better understand the question (Appendix A). On average, the individual interviews lasted approximately forty-five minutes.

The survey was constructed and pre-tested in the summer of 2001, and contained questions pertaining to demographics, goals/decisions, intuition and risk, operations, perceptions, and SWOT analysis. The researcher conducted pre-testing in summer 2001 on local beef cow/calf producers, which resulted in minor editing changes to improve question clarity.

The demographics section of the survey included questions about producer history, family structure, business structure, and education levels. The goals/decision section aimed to find out how producers make decisions, if producers set goals, and, if so, what types of goals were set. Intuition and risk

questions were used to establish the level of intuition and risk producers use in their operations. The operations section contained questions about marketing strategies, record keeping, and time prioritization. The perceptions category included questions about producers' perceptions about the beef cow/calf enterprise in general as well as inquiring about their own operations. SWOT analysis (internal strengths and weaknesses, external opportunities and threats) was the final section of the survey, which contained the component to assist producers in evaluating the strengths and weaknesses of their operations and themselves. In addition, this section requested that participants include an evaluation of the opportunities and threats of the beef cow/calf industry based upon their experiences.

Analysis Techniques

Data analysis began with reading and editing the transcripts; then, the corrected transcripts were re-read, initiating the coding process. Codes are shorthand labels or tags used to assign meaning to descriptive or inferential information gathered during research. These codes are connected to words, phrases, sentences, or even paragraphs. The meaning of the "code" matters in this type of research, not the word representing the code (Miles and Huberman, 1994). Codes were assigned to common themes throughout the transcripts. Producers were asked what areas of their operation they set short-term goals for. For example, the code "Breeding" includes responses such as the percentage of cows bred and their calving dates (Appendix B). Then, the transcripts were

reviewed again and recoded as needed. Meaningful quotes from the producers were also highlighted.

Due to the small census population and absence of random sampling, it was possible to conduct the descriptive analysis through Statistical Package for the Social Sciences (SPSS®) for Windows (2002). As a preliminary analysis, the cross tabulation function was used first to find the mean and standard deviation for each question. If there appeared to be few differences between the means, Kendall's Tau and Spearman's Rho correlation statistics were computed. The correlation coefficients determined the level of correlation between the three profitability categories for each question. In essence, the researcher tried to assess any significant differences in personal characteristics and management factors among the high, medium, and low profitability categories.

Summary

This chapter identified the research method, data collection process, and analysis techniques. The next chapter contains the literature review of the history of South Dakota's beef cow/calf enterprise, the analysis tools used in the beef industry, and the factors that may affect profitability.

Chapter III

Review of Literature

The literature review is designed to provide general information about the history of South Dakota's beef cow/calf enterprise, the analysis tools used in the beef industry, and the factors that may affect profitability. This chapter is divided into four sections. The first section contains information about the history of South Dakota's beef cow/calf producers. The next section reviews some of the past studies on profitability within the beef cow/calf industry. The third section contains a review of Standardized Performance Analysis (SPA). The final section contains information on the role of strategic analysis in determining factors that may affect profitability in the beef cow/calf enterprise.

History of Beef Cow/Calf Enterprise

The number of beef cows in South Dakota has increased by approximately five percent in the last thirty years. In 1971, there were 1.727 million beef cows; by 2001, there were 1.809 million beef cows in South Dakota. However, the number of beef operations in South Dakota has declined by 3,496 farms in just ten years. The trend is to have fewer but larger beef operations (USDA-SDASS, 2001). The following table (Table 3.1) shows the historical estimates of how each herd size category has changed from 1986 to 1999 according to the percent of total beef cows in South Dakota.

Table 3.1 Size Changes in South Dakota's Beef Cow/Calf Enterprise

Year	Number of Beef Cows per Herd			
	1-'49	50-99	100-499	500+
1986	52.00%	23.00%	25.00%	0.00%
1999	42.90%	23.20%	31.80%	2.10%
Change	-9.10%	0.20%	6.80%	2.10%

Source: UDSA-SDASS

Since 1862, the year land grant universities began, agriculture in the United States has seen dramatic changes. The US agricultural sector once had ten million farmers and farm workers; by 1995 only 2.1 million farmers and farm workers earned their living in agriculture. During that same time period, farmers went from being able to produce enough food to feed five people to having the capability to feed over one hundred people (Weber, Hoban, Kendall, and Bull, 1995). Thomas cited three reasons for the continual change in agriculture: technology, international interdependence, and public policy. He indicated that technology could possibly be the most influential factor. Technology is produced off-farm, which results in off-farm firms fostering vertical integration arrangements. Technology can also result in individual farmers having the ability to manage and control more land, livestock, and inputs, which could lead to horizontal growth of individual operations. Overall, technology lowers and flattens the average cost curve for farm operations of various sizes (1999).

Past Studies of Profitability Within the Beef Enterprise

Many studies have been conducted on profitability in the beef cow/calf enterprise. Most studies analyzed only the production and financial records, such as weaning weights, feed costs, and herd size. These studies did not investigate the impact that personal and management factors might have had on profitability.

The noticeable lack of understanding regarding the profitability concept within the beef industry raised concern among its leaders (Corah, 1995). One explanation for this lack of understanding within the beef industry includes differences in methodology and terminology. A second explanation may be that a long and steep drop in demand for beef has led the industry to focus on marketing. However, during this time of decreased demand, understanding profit determination and management has been ignored (Purcell, 1999). A third explanation for the reason profitability determinants may be misunderstood is the absence of large uniform data sets. These data sets could prove useful in developing, understanding, and communicating profit-optimizing management behavior (Dunn, 2000). Miller, Faulkner, Knipe, Strohbehn, Parrett, and Berger believe that research on profitability has been difficult or hindered because of the lack of the actual financial and the economic cost of production data for operations (2000). Bourdon states that producers must view their beef operations in their entirety and understand how component parts interact with one another to ultimately affect profitability (1999).

Barry H. Dunn of South Dakota State University analyzed data to characterize production, financial, and managerial aspects of the beef cow/calf enterprise of the Northern Great Plains. Dunn also analyzed the data to determine the relationship between production performance, financial performance, and management (2000).

Dunn conducted two analyses. The first analysis used SPA data collected from 1991-1999 by Edward D. Hamilton of South Dakota State University and Duane Griffin of Montana State University. The producers were from six states, and a total of 239 SPAs were reviewed. SPA economic data was not collected on all participants and therefore was not a part of this analysis. Means, standard deviations, minimum values, and maximum values were calculated using a General Linear Model of SAS for each SPA variable. The producers were classified as high, medium or low profitability producers. The classification categories were determined by one standard deviation above or below a mean ROA.

This study found no significant differences between the high profit enterprises and medium profit enterprises when considering various production measurement factors, including size of operation, weaning weight, pregnancy percentage, calving percentage, female replacement rate, the measures of calving distribution, or kilograms weaned per cow exposed. However, when considering financial measurement factors Dunn found some significant differences between the high profit and medium profit enterprises. High profit

enterprises had lower investment costs, lower depreciation expenses, and lower total expenditures than medium profit enterprises. Also, high profit enterprises had higher revenues, net incomes and ROAs and a lower breakeven point than both medium and low profit enterprises (Dunn, 2000).

The second analysis Dunn conducted used data from the standardized performance analysis (SPA) producer questionnaire. The survey was constructed in cooperation with members of the Economics Department of South Dakota State University. The questionnaire focused on five areas of the operation: 1) history; 2) business structure; 3) management; 4) producer attitude; and 5) producer education. Twenty-one questionnaires were completed and could be matched with their SPA data from analysis one and used in this analysis. Due to a small sample size, only five questions were analyzed: 1) age of operator, 2) months calves were marketed, 3) education level, 4) percentage of gross income from cow-calf enterprise, and 5) business structure of the operation. Producers who completed the survey had an average ROA of 4.6 percent. Which was above the 3.1 percent average ROA for the entire data set in analysis one. A positive correlation existed for those producers who marketed their calves in October and November and a higher ROA (2000.)

A team from Illinois State University and Iowa State University analyzed data to identify management areas that influence profitability (Miller, Faulkner, Knipe, Strohbehn, Parrett, and Berger, 2000). Data was collected from Iowa and Illinois cow/calf producers from 1996 to 1999. Three types of operations were

excluded from the database: purebred seed-stock producers, herds with less than twenty cows and herds with greater than two thousand cows. The final SPA database contained a total of 225 observations from 126 different producers. This study used a stepwise regression and Pearson's correlation coefficient to determine linear association between variables (Miller, Faulkner, Knipe, Strohbehn, Parrett, and Berger, 2000).

Two analyses were conducted, one using actual financial cost of production data and the second using economic cost of production data. Total annual cost per cow was excluded as a dependent variable because prior research and analysis indicated that total cost per cow was an overriding factor of profitability. The actual financial cost of production study analyzed five management factors to better understand their influence on profitability. Those factors were: feed costs (including pasture costs), operating costs, depreciation costs, capital charge, and hired labor. A sixth factor, family labor, was included in the economic analysis. The dependent variable in the financial cost of production analysis used investment on an actual cost basis as the dependent variable, whereas the economic analysis used investment on a market value basis as the dependent variable. Due to lack of significance ($P < .10$), hired labor, family labor (economic analysis), investment, cull weight, cull price, and calving distribution were excluded from the analysis. The study found that cow-calf producers had a $19.91 financial Return to Unpaid Labor and Management

(RLM) per cow and a negative $80.69 economic RLM per cow. Over fifty percent of the herd-to-herd variation in RLM could be explained by feed costs. Results of this study found eight measurements capable of explaining eighty-two percent of the farm-to-farm variation in RLM. The eight variables were: feed costs, depreciation costs, operating costs, calf weight, capital charge, calf price, weaning percentage, and herd size. According to Miller, Faulkner, Knipe, Strohbehn, Parrett, and Berger, overall, cost factors were far more influential in driving RLM than production, reproduction or producer controlled marketing factors (2000).

A joint project by the Multi-Disciplinary Family Farm Research Project Team from South Dakota State University and Rural Technology Partnership analyzed the "Keys to Success in Farming" project in 1991. The team from SDSU evaluated 549 mail surveys and interviewed sixteen of the farm couples. The sixteen farm couples were selected with the assistance of the SDSU Cooperative Extension Service. The criteria for selection included that the farm couples had maintained or increased earned net worth, had successful family lives, were actively operating farms, and were between the ages of thirty and sixty years old. Interviews were conducted to identify characteristics or practices which have enabled them to succeed in their farming operations and to identify characteristics or practices which have enabled them to succeed in their family lives. The interviews were conducted on the farm site and had a two to four hour time span. There were five components to each interview: 1) verbal questions,

2) written questionnaire, 3) written risk preference questionnaire, 4) financial information (FINPAK) and 5) farm site tour (Peterson, Clark, Janssen and Stover, 1991).

The results of this study indicated that all sixteen farm couples had assistance starting their operations, and all couples had set goals to include increasing the amount of land they would farm through renting or purchase. Also, all sixteen farm couples maintained some sort of record keeping system, from filing receipts to hiring professional bookkeeping services, and they had low debt-to-asset ratios. The farm couples had diversified farming operations and made their decisions collaboratively. The farm couples listed personal characteristics they felt were important to success in farming. Persons with some of those characteristics, included being flexible, cooperative, determined, hard working, optimistic, patient, able to finish projects, and had faith their operation would succeed (Peterson, Clark, Janssen and Stover, 1991).

A survey of farmers in Michigan, New York, Ohio, Virginia, West Virginia and Pennsylvania was conducted to determine what factors persuaded them to operate a beef cow/calf enterprise. The most important reason for entering into the beef cow/calf enterprise was "fulfilling a personal desire." None of the farmers listed profit as a major influential reason for entering the enterprise. The respondents were also asked if the enterprise satisfied their expectations. Two-thirds of the farmers said their expectations were fulfilled, and ninety percent said the enterprise fulfilled their family and personal expectations in addition to

providing them a sense of achievement. However, only one-third of the farmers were satisfied with their economic returns (Crowley, 1977).

A study done by the National Animal Health Monitoring System (NAHMS) in 1997 found that 17.2 percent of all operations had beef cows for some reason other than as a source of income; such as pleasure or excess forage control. The NAHMS study consisted of operations from 23 selected states, including South Dakota. As expected, 78.9 percent of larger operations (over 300 head) and only 5.5 percent of smaller operations (less than 50 head) had beef cows as a primary source of income. And, 4.3 percent of larger operations and 21.8 percent of smaller operations had beef cows for reasons other than income.

The economies of size theory measures the relationship between average size, or number of cows, and the average production cost break-even point. Langemeier, McGrann, and Parker used data from the 1991-1992 National Cattlemen's Association – Integrated Resource Management – Standardized Performance Analysis (NCA-IRM-SPA) database. This study found that larger herds (greater than five hundred head) had a competitive advantage because of lower raised and purchased feed costs, lower total costs, and lower costs of production. Economies of size exist up to the 500-999 cow range and with the increased production costs for herds with over 1000 cows, there may be some diseconomies of size (1994). One would expect economies of scale to be evident when the dependent variable is net income. However, net income does not measure efficiency.

Economies of scale have been reported to exist in the cow-calf enterprise. The Miller, Faulkner, Knipe, Strohbehn, Parrett, and Berger (2000) study found a negative correlation between herd size and feed and operating costs and farm labor in the financial analysis. But, a positive correlation existed between herd size and farm labor in the economic analysis. Herd size explained less than one percent of the herd-to-herd variation in profit. Overall, this research found that there may be economies of scale in the form of reduced feed and operating costs (2000).

Standardized Performance Analysis

Integrated Resource Management (IRM) is a systematic approach to ranch management. IRM says they are "dedicated to improving the economic efficiency of cattle operations through effective resource management." IRM uses both production and economic research to develop practical, appropriate, and profitable ranch management decision guidelines. IRM focuses on the need for producers to set goals, which are the driving force for producers to make decisions and to determine the need for production and financial records. The goal of IRM is to help producers develop day to day and year to year plans. When the need arises, IRM members work together with support personnel, such as ag agents and extension specialists, veterinarians, lenders, researchers, and ag industry representatives, to help fulfill producers' needs. Support personnel

can contribute to the production and economic fact base needed for good decision-making (Oklahoma Cooperative Extension Service, 2001).

The National Integrated Resource Management Coordinating Committee and the Integrated Resource Management (IRM) Committee of the National Cattleman's Association developed standardized terminology, definitions, and methodology for the beef industry in the early 1990's. One of the driving forces behind the standardization is so that researchers have the tools to conduct a more informed, concrete analysis of the beef cow/calf enterprise (Hamilton, 1995).

Standardized Performance Analysis (SPA) resulted from the standardization of terminology, definitions, and methodology. IRM-SPA was the first tool within the beef industry to analyze the effects of both production and financial factors on profitability. SPA is an analytical tool that links production and financial records. The goal of SPA is to provide timely, useful information that will help producers make more informed decisions. SPA results will also help to identify areas of the operation that may need improvement, as well as the strong areas of the operation (Oklahoma Cooperative Extension Service, 2001). SPA uses various performance measurement tools to evaluate the beef cow/calf enterprise. The tools include measuring production, expense, reproduction, and profitability factors. Some regional differences have been noted in the interpretation of SPA guidelines. For example, Iowa State University does not use pastureland or investment in hay land or equipment (Dunn, 2000).

SPA has two components: production and financial measurements. Production measurements include reproduction, production, and grazing as well as raised feed factors. Financial measurements include the actual costs of production and an economic performance measure (Kaan, 1998). The actual costs of production include both cash and non-cash expenses, such as depreciation. Economic performance takes into account the opportunity cost of owned land and equity capital in the enterprise plus the potential sales value of raised feed (Doyle, 1996).

The key to success when using SPA is standardization. There are guidelines to follow when calculating ratios and performance measures to achieve consistent results that allow for comparisons from year to year and from producer to producer (Oklahoma Cooperative Extension Service, 2001). Historical performance data is needed to set effective goals and identify areas of change for the operation. The long-term goal the National IRM coordinating committee was to develop a national database for producers to access comparative standards for similar groups of operations. However, even with standardized terminology, the definitions were interpreted differently. For example, South Dakota State University and Iowa State University have different understandings for pastureland (McGrann, Parker, Falconer, Clary, Neibergs, Gutierrez, 1992).

Strategic Analysis

The survey used in this research contained six sections, including demographics, goals/decisions, intuition and risk, operations, perceptions and strengths, weaknesses, opportunities and threats.

Because the agricultural sector constantly changes, the need to understand how an operation works and its components becomes vitally important. As a result of these changes, farm operations are challenged to identify their competitive strengths and to develop strategies for maintaining their competitiveness. The continued industrialization of agriculture has led to the need for a strategic plan. Strategic planning addresses challenges such as the decisions associated with product mix, marketing linkages, and the financial structure of the operation. Other areas of strategic planning include risk management and setting goals. Possessing strategic planning skills is also a valuable management tool (Miller, Boehlje, and Dobbins, 1998).

According to David, strategic management can be defined as "the art and science of formulating, implementing and evaluating cross-functional decisions that enable an organization to achieve its objectives " (1999:5). The focus of strategic management consists of, but is not limited to, integrating management, marketing, finance/accounting, and production/operations into the organization. A strategic, long range plan helps guide producers to make decisions today that will help them achieve their long term plans. Developing a long-range strategic business plan assists producers, allowing them to clarify needs, goals, and

desires. A long-range plan can also help keep operations in line with industry demands and changes (Thomas, 1999; David, 1999).

Strategic thinking affects day to day decision making in that it clarifies what is primarily important in terms of what producers want to do with their operations, what their operations need in order to compete and survive in the future, and what their operations are capable of doing. Strategic planning does not focus on predicting the future, but rather on making better decisions now that will influence the operation's success and survival in the future (Miller, Boehlje, and Dobbins, 1998). Decision-making is an important part of every manager's responsibilities. The decision making process contains basic functions such as planning, implementation, and emotional control. Emotions often play a big role in decision making; maintaining up-to-date and accurate records and information helps producers (managers) achieve control and make better decisions. A good record keeping system allows producers to work smarter, but not necessarily harder. Records can specifically help producers in the financial, legal, and production areas of the operation. Financial records can assist producers with tax preparations and credit attainment. Records also help producers with legal issues, such as payrolls (if applicable) and compliance with government program regulations. Production records also aid producers with feeding, breeding, weaning weight decisions, and many other types of decisions. Recognize, Analyze, Decide, Action, and Responsibility are the five steps to RADAR.

RADAR is an effective tool to help producers in decision-making. (Trimble, Isaacs, Joerger, and Jones, 1996).

Another essential part of strategic planning includes setting goals. Producers may possibly set many types of goals for their beef cow/calf operations. For example, producers may set goals for marketing, weaning weight, calving percentages, and profit. No matter what type of goals producers set, effective goals are well defined, realistic, measurable, consistent, and flexible. Good management strategies include both short-term and long-term goals, which offer guidance and direction in decision-making. Short-term goals need to support the achievement of long-term goals. Prioritized goals aid producers in reducing goal conflicts and better management of their goals. Written goals are beneficial because producers then have written records of their goals and can build commitment to achieving their goals (Karberg, 1993; Pflueger, 1996; Thomas, 1999; Trimble, Isaacs, Joerger, and Jones, 1996). In 1953, graduating students from Yale University were surveyed to find out how many of those students write down their goals. Only three percent wrote down their goals. Twenty years later, the researchers followed up on those same Yale students and found that the three percent that wrote their goals down were worth more than the other ninety-seven percent combined, and they were happier with where they stood in life (Trimble, Isaacs, Joerger, and Jones, 1996). Another benefit of setting goals is that communication among family members and other affected parties improves. Mutual support is given to business activities,

therefore providing increased chances that the necessary actions will be taken toward achieving goals when other family members and workers are involved in the goal setting process. Goals can bring an improved balance to the lives of individuals and families. Goals are meant to be a source of encouragement, not a limitation to the success of an operation. If producers are not flexible, setting goals can actually work against them (Thomas, 1999; Karberg, 1993; and Trimble, Isaacs, Joerger, and Jones, 1996). Karberg states that producers with well defined and frequently reviewed goals will be able to achieve more of their long-range farm business goals (1993). Futrell and Wisner claim that many producers are reluctant to set goals because their goals are frequently unrealistic (1987).

Futrell and Wisner state that it is also important to establish marketing goals and to develop specific market plans and strategies to obtain these goals. The marketing plans or strategies should comprise a fundamental part of the total farming operation. The plan must be consistent with the operation's current production situations, the types of livestock, the financial situations and personalities of the producers (1987). Developing a long run set of price expectations requires some insight regarding the supply and demand of the products produced in the industry. The demand side deals with demographics and various economic factors, and the demographic view has been broadened because of international markets. Economic factors include the current stage of business cycles, availability of substitutes, changes in tastes and preferences,

and the value of the US dollar, which affects international demand. The supply side looks at the degree of unmet demands and the changes in technology (Thomas, 1999).

Strategic analysis provides data for the development and evaluation of alternatives for cow/calf producers. A strategic analysis examines both the external economic environment and the internal characteristics of the operations. It is often suggested that a strengths, weaknesses, opportunities, and threats (SWOT) analysis be included in the strategic analysis (Miller, Boehlje, and Dobbins, 1998). SWOT analyses provide a good overview of whether the business positions of the operations are fundamentally healthy or unhealthy. This analysis is also grounded in the basic principle that strategies are intended to generate the best possible matching of each operation's internal capabilities in relation to its external condition (Thompson and Strickland, 2001). SWOT analysis examines the internal strengths and weaknesses of the beef cow/calf operations and the environmental opportunities and threats facing those operations. The beginning stages of strategic management plans should include an identification of its external threats and opportunities as well as an identification of its internal strengths and weaknesses. An effective SWOT analysis is based on the assumption that a strategy maximizes a firm's strengths and opportunities and minimizes its weaknesses and threats. The attentive matching of strengths and weaknesses to opportunities and threats is essential to a solid strategy formulation (Pearce II and Robinson, 1991; David, 1999).

Monitoring the external environment and the internal capabilities of the operation is important for producers to know when they need to implement changes. A strategic audit is a SWOT analysis tool used to monitor those external/internal factors and the impact those factors have on an operation. The strategic audit looks at the current mission, the long-term goals, and the current strategy of the operation. An audit may look more specifically at external areas such as the legal/political background, the social culture, the economy, the customers and the competitors. The internal areas more closely reviewed may include culture, management, marketing, and finance. Management areas can be broken down and evaluated through the planning, organization skills, staffing, motivational skills, leadership skills, and control of the management in the beef cow/calf operation. Once the strategic audit is complete, the mission, long term goals, and strategies should be reevaluated to determine if the current approach is adequate or if changes need to be implemented through internal factors to achieve the long term goals (Cumber, 1995). Two factors can separate the best managed organizations from the rest; those factors are: 1) superior strategy making, and 2) competent implementation and execution of the chosen strategy. SWOT analysis can trigger producers' thinking about how their operations need to change in order to survive in the industry and be competitive with successful bottom-line results (Thompson and Strickland, 2001).

Risk is another important aspect of strategic management. Risk can have many different possible definitions. Fleisher states, "Risk is like love, we all know

what it is, but don't know how to define it" (1990:13). One possible definition is the chance that the actual return on an investment will be different from its expected return. Producers and their operations are faced with several types of risk, such as interest rate risk, market risk, inflation risk, business risk, financial risk and liquidity risk (Jones, 2000). Business risk regarding cow/calf operations includes the inherent uncertainty in the financial performance of farms independent of the way they are financed. Some factors that affect business risk are price, cost, productivity, and production uncertainty. Financial risks are the added variability of net returns to the owners' equity that results from the financial obligation associated with debt financing (Miller, Boehlje, and Dobbins, 1998). Any type of risk is made of four components: 1) threats, which can produce adverse results; 2) resources are assets, so people and earnings could be affected by threats; 3) modifying factors that increase/decrease the possibility of threats becoming realities that could also determine the severity of consequences; and 4) consequences are the extent to which threats manifest their effects upon resources (Crockford, 1982).

Risk cannot be controlled, but producers can manage risk through practicing the following six points. Producers should: 1) know the abilities of the operation; 2) know when to avoid risk; 3) evaluate all decisions and the possible outcomes; 4) estimate the likelihood of each outcome occurring; 5) understand the relationship between risk and return; and 6) develop management strategies that deal with risk. However, each type of risk may need to be handled

differently. For example, in dealing with market risk, producers may use contracts, price hedging and options, or alternative market sources. In dealing with business risk (production/technical risk), producers may carry insurance, vaccinate, and have enterprise diversification. Flexibility is an important part of risk management for producers. Financial risk management could include having a resource reserve and knowing the liquidity and solvency ratios for the operation. Knowing these ratios could help the producer in decision making as well (Trimble, Isaacs, Joerger, and Jones 1996; Pflueger, 1996; Fleisher, 1990). Producers also review past experiences, current situations, and future known or predicted events to aid in stabilizing or reducing risk. How producers deal with risk depends largely on not only the type of risk they are facing, but also on their attitude towards risk. A particular situation and the risk management alternatives available may influence producers' attitudes. One producer may be risk averse with machinery purchases, but risk preferring with crop marketing. Overall, risk management is positively correlated with profit (Fleisher, 1990; Crockford, 1982).

A study was conducted on 147 crop and livestock producers from twelve states. The producers were asked to rank seventeen types of variability (risk) in agriculture according to importance. Livestock-only producers found the most important source of risk to be weather, product prices, input costs, and safety/health or inflation. The importance of each source of risk varied among producers for several reasons, such as production processes, enterprise

combinations, locations, resource bases and financial conditions (Fleisher, 1990).

The agricultural sector faces other types of risk, such as strategic risk and policy risk. Strategic risk is multidimensional; therefore, producers need to be more creative in developing their strategies. Their strategic plans should contain approaches like flexibility, adaptability, and diversification. Policy risk affects producers through new government policies inside and outside of the agricultural sector. Policies specific to the agricultural sector affect producers through the uncertainty of future policy and how administrative officers will execute out the provisions of the new policies. Producers are also affected by polices not specific to the agricultural sector, such as monetary and fiscal policies. Farmers also face two other types of risk: contractual or relationship risk and regulatory risk. These risks have arisen due to the increased industrialization and regulations in the agricultural sector (Miller, Boehlje, and Dobbins, 1998; Fleisher, 1990).

The large and diverse livestock production system in the United States is backed by a large and complex marketing system. Futrell and Wisner of Iowa State University noted the various functions included in this marketing system. These functions include: assembly, transportation, grading, financing, inspection, pricing, exchange of ownership, price and discovery, marketing news reporting, buying and selling, and the amount of risk producers are willing to bear (1987).

In 1987, livestock sales, including dairy products and poultry, accounted for approximately one-half of total cash receipts from farm marketing. At this time, the trend was switching from terminal markets to markets where products were moved directly from buyers to sellers. The three main reasons for this change follow: 1) improved highway and truck transportation; 2) relocation of meat packing plants from terminal market locations to high-density livestock production areas; and 3) improved market information and communication technology available to increasingly capable livestock producers (Futrell and Wisner, 1987). Research and extension specialists have traditionally based their educational programs on increasing production efficiency. The value based beef model, however, focuses on selected quality factors aimed at consumers' wants and desires. Prices in this model are based off of a set of quality specifications through some form of a grid system. The most well known example of a value based beef system is Certified Angus Beef (CAB), which was established in 1978 (Hughes, 2001).

Summary

This chapter provides general information on the history of South Dakota's beef cow/calf enterprise, analysis tools used in the beef industry, and the role of strategic analysis in determining factors that may affect profitability in the beef cow/calf enterprise. Data analysis is detailed in the next chapter.

Chapter IV

Data Analysis

Nineteen South Dakota cow/calf producers were surveyed via personal interviews during summer and fall 2001. The nineteen producers consisted of two low profit producers, ten medium profit producers and seven high profit producers. The profitability categories were determined using the ROA for the cow/calf operations. Low profit producers had a ROA less than negative 6.7 percent. High profit producers had a ROA greater than 12.9 percent and medium profit producers had a ROA between the low and high profit producers. The producers surveyed were from twelve different counties throughout South Dakota, shown in Table 4.1.

Table 4.1 County Representation of Producers Surveyed

County	Number of Participants
Bennett	1
Brule	1
Charles Mix	1
Dewey	2
Fall River	5
Hughes	1
Hutchinson	1
Lyman	1
McPherson	1
Meade	1
Pennington	1
Turner	3

Given the constraints of a relatively small census population and the uneven distribution of producers in low, medium, and high profitability categories,

descriptive analysis and nonparametric correlations were deemed appropriate for this data set. An in-depth explanation of the research methods used while conducting this study are outlined in the analysis techniques section of chapter II. The sequence of this chapter emulates that of the survey questionnaire (Appendix A).

Demographics

This section of the chapter contains general demographic characteristics and provides background information about the producers surveyed. Table 4.2 includes a complete listing of producers' responses to seven questions listed in the demographics section of the survey.

Of the nineteen cow/calf producers surveyed, sixteen operate their cow/calf operations as a sole proprietorship. One medium profit producer uses a limited family partnership organizational structure, and one producer from both the medium and high profitability categories operates under a family held corporation structure. However, producers from all three profitability categories feel their operations could also be considered either family owned proprietorships or partnerships because a father, brother or son is actively involved in the operation. To help clarify any confusion regarding this issue, all producers were instructed to indicate how they file their income taxes. One could interpret that these producers may not realize the advantages of a corporate structure. Producers are not taking advantage of the risk, inheritance, or tax protection available to them under a corporate structure.

When asked what percentage of their gross income was generated from their cow/calf operations the medium profit producers displayed the highest amount of diversity. This could either indicate diversity among farm/ranch activities or income sources. The medium profit producers' percentage of gross income from their cow/calf operation varies from ten to almost one hundred percent, and half of the medium profit producers generate over sixty-one percent of their gross incomes from their cow/calf operations. High profit producers receive twenty to eighty percent of their gross income from their cow/calf operations.

Most of the producers have children, but only a few of these children are involved in their family's cow/calf operations. Low profit producers completed the highest average level of education and have the lowest average age (Table 4.2). These two factors could be related. Higher education has been emphasized in more recent years.

Table 4.2 Producer Analysis

Type of Organization Structure	Low Profit*	Medium Profit	High Profit**
Family Proprietorship	0	0	0
Sole Propretorship	2	8	6
Limited Family Partnership	0	1	0
Family Held Corporation	0	1	1
Other	0	0	0
Percentage of Gross			
0-30%	0	2	2
31-60%	2	3	2
61-90%	0	4	3
91-100%	0	1	0
Operator Age			
Under 30	0	0	0
31-40	2	1	1
41-50	0	7	3
51-60	0	1	2
61-70	0	0	1
71 & Over	0	1	0
Marital Status			
Single	0	2	0
Married	2	6	6
Separted or Divorced	0	2	1
Widowed	0	0	0
Number of Children			
Zero	0	3	0
One	1	0	5
Two	1	2	2
Three	0	2	0
Four	0	3	0
More than Five	0	0	0
Number of Children Involved in Operation			
Zero	0	5	0
One	1	3	5
Two	1	0	2
Three	0	1	0
Four	0	1	0
More than Five	0	0	0
Level of Education			
Eighth Grade	0	0	0
Twelve Grade	0	4	3
Associate Degree	1	2	1
Bachelor's Degree	1	3	3
Advanced Degree	0	1	0

*Total producers in each category Low 2, Medium 10 and High 7

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

A majority of the producers surveyed, seventy-nine percent, became cow/calf producers because they enjoyed the farm/ranch lifestyle. Another popular response was that they were raised on a farm/ranch and want to take over the family operation. One medium profit producer said:

> "Of course my Dad lived on the same farm and did the same thing and so you know you look up to your parents and look up to your father and so you say well, you know that's the way I want to do it."

However, not all producers took over their family operation; some started their own. One medium profit producer desired the status of a beef cow/calf producer.

> "Oh, I suppose a lot of what I do... I mean I like to do horseback and ride and be out in the open and ah... a cow/calf operation that puts me there, you know like I have friends and we work together back and forth. There's culture. I've just been reading about that, there's the culture of cow/calf people, cowboys, ranchers, it's something I enjoy."

A producer from each of the high and medium profitability categories indicated they became cow/calf producers because of the limited options available to them. Every producer that responded to limited options did so because they wanted the farm/ranch lifestyle and were limited to what the land could be used for. Limitations included how the land was set up or the climate in which they lived. Additional reasons for starting a cow/calf operation by high profit producers included diversification of the farm/ranch, desired the status of a cow/calf producer and wanted to raise a family on a farm/ranch.

When asked why they were still a cow/calf producer their responses were similar to their reasons for starting. Again, seventy-nine percent of the producers stated they still enjoy the farm/ranch lifestyle. One medium profit producer said, "Well, you know being able to do what you want. I mean that still has to do with independence."

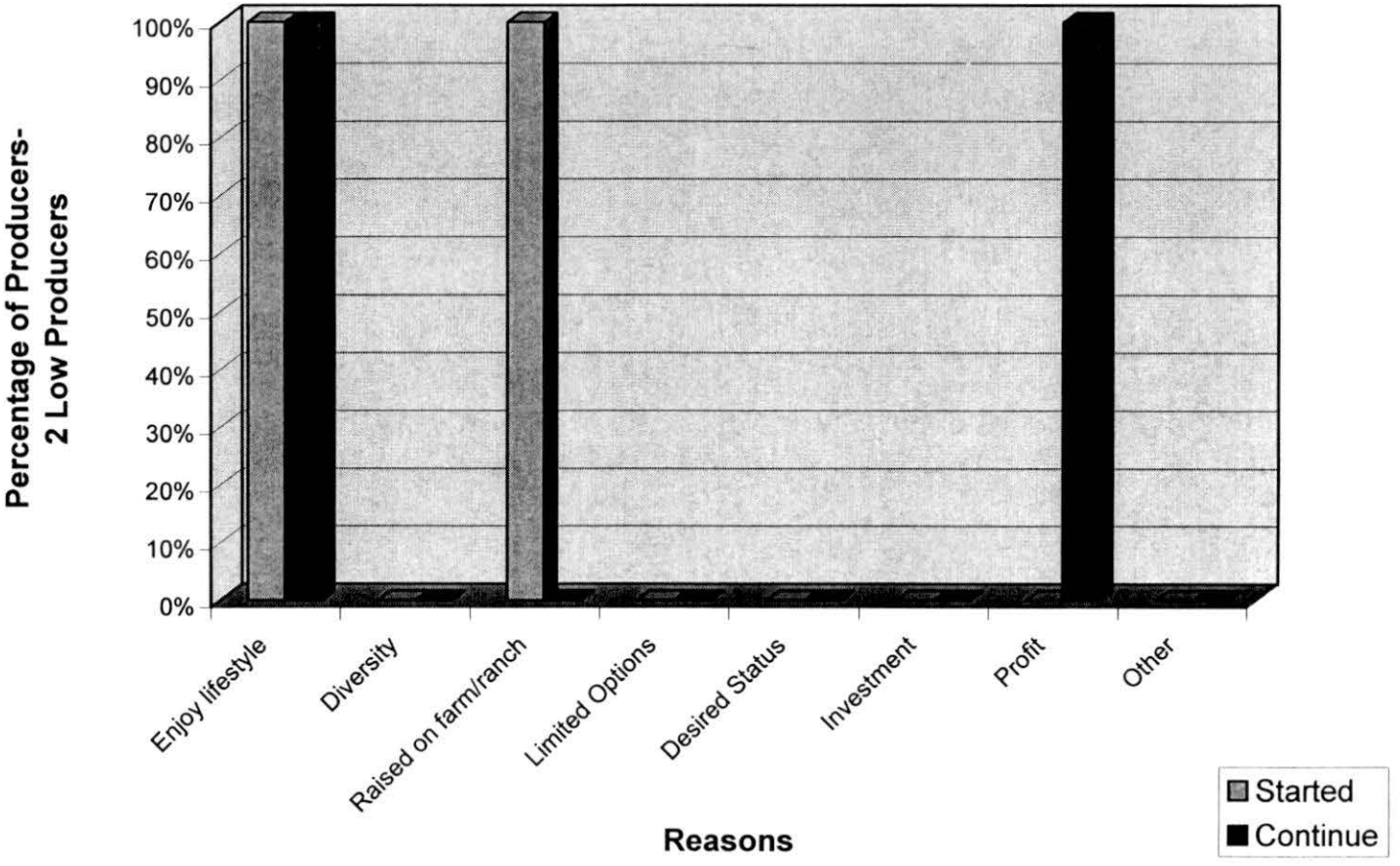
Graphs 4.1, 4.2 and 4.3 show the comparison between why producers started their cow/calf operation and why they are still producing. In addition to lifestyle, some other reasons for continuing include diversification of their farm/ranch, limited options with the land, and they still desire the status of a cow/calf producer. A medium profit producer said,

> "I just kind of like the idea of having some cows and calves and almost kind of like to look at myself as almost a cowboy although I don't ever wear cowboy boots or a hat or anything."

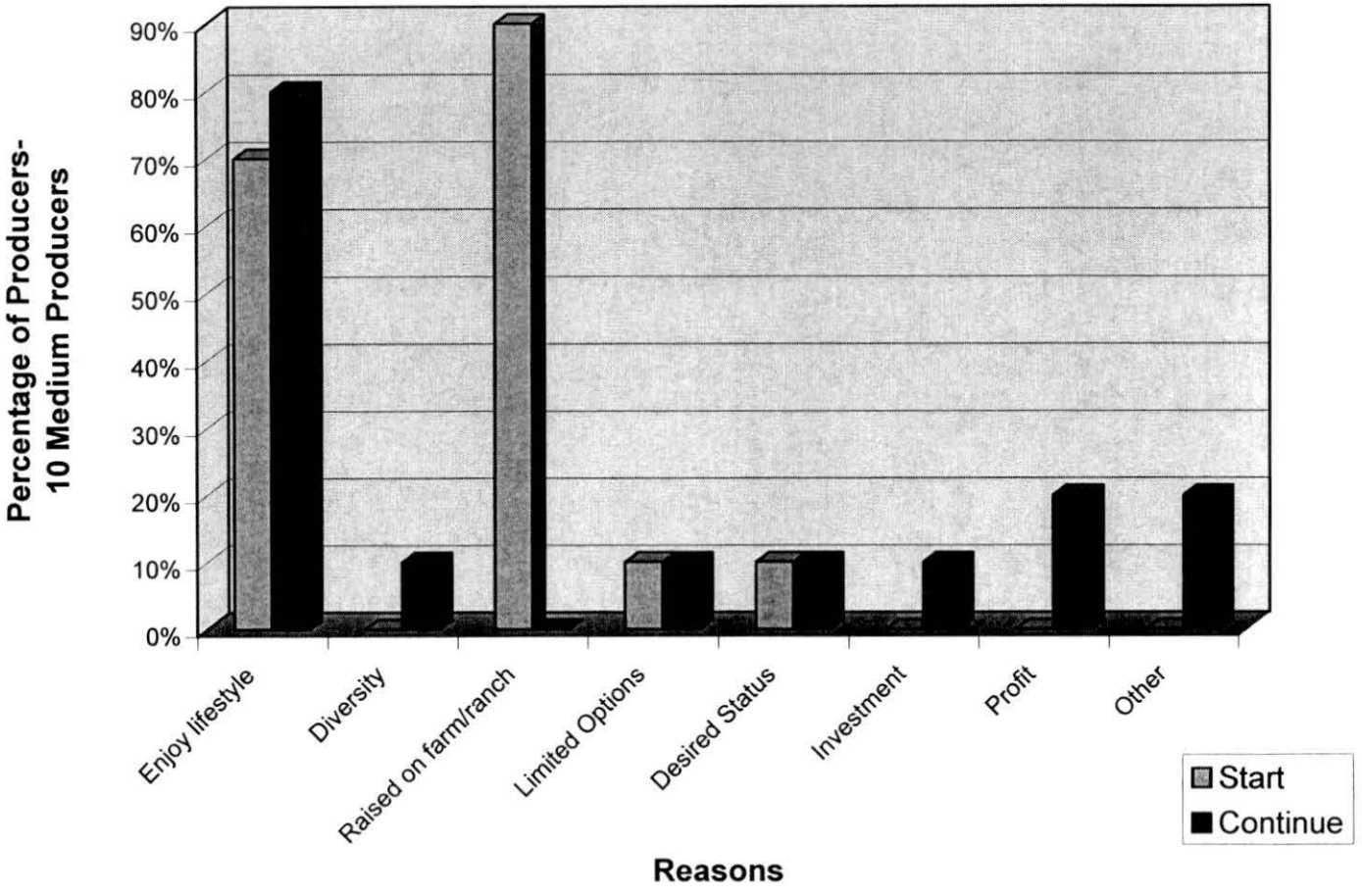
Two reasons that high profit producers continue to operate were to raise a family on a farm/ranch and there was family interest to take over the operation. Other reasons include the challenge of becoming profitable, to build a retirement account and simply because they felt their operation was profitable. Both low profit producers felt their operation was profitable even though their ROA measurement was negative. This contradiction between producers' viewpoint of profit and their ROA measurement could indicate several things. First, that a misunderstanding of the term profit exists between producers. Second, the low profit producers did not realize the actual seriousness of their financial situation.

These findings agreed with a study done by NAHMS, where producers have beef cows for some reason other than income, such as for pleasure or excess forage control. As indicated in this research the farm/ranch lifestyle is the primary reason for operations to have beef cows.

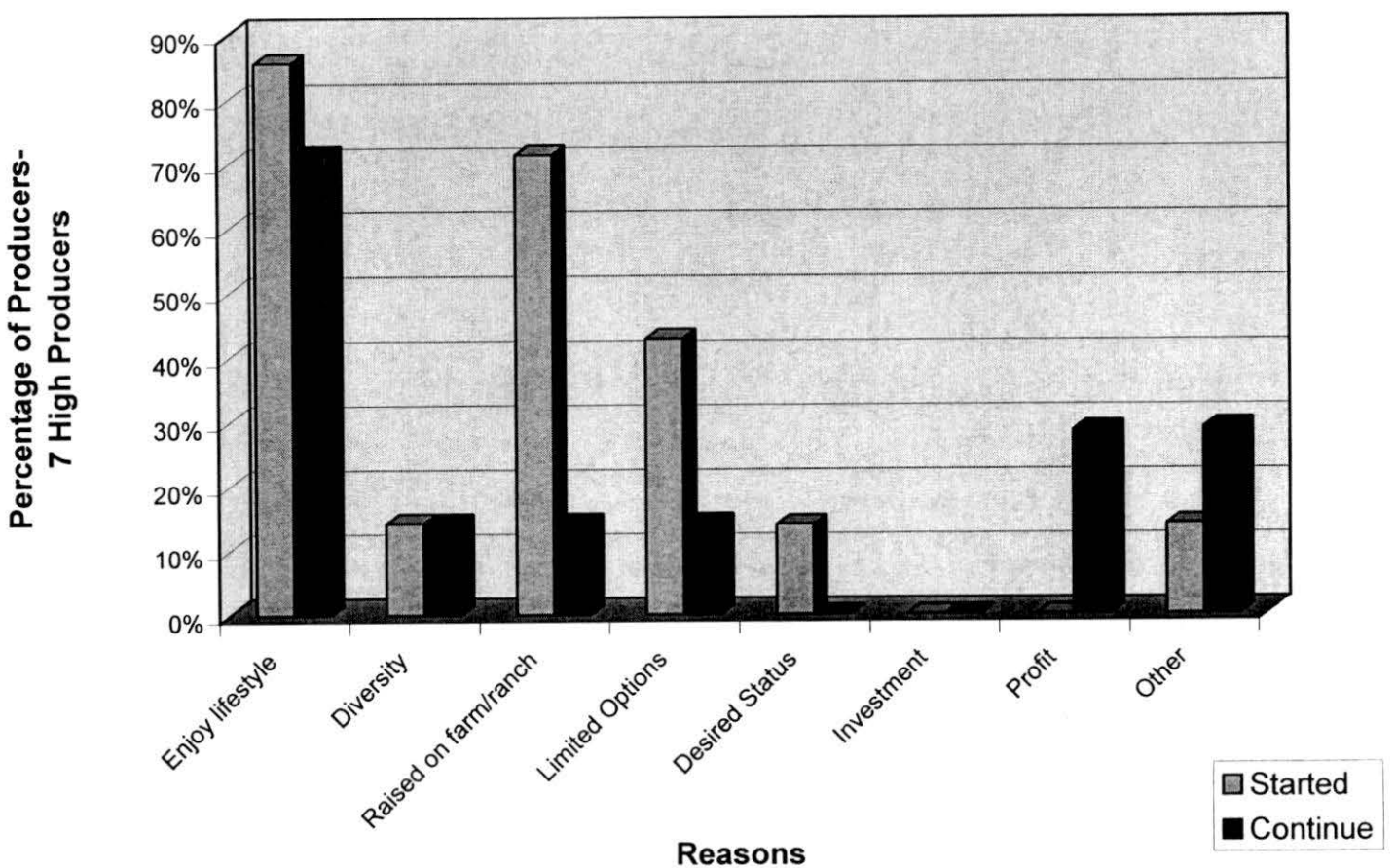
Graph 4.1 Why Low Profit Producers Started Their Cow/Calf Operation and Why They Continue to Operate



Graph 4.2 Why Medium Profit Producers Started Their Cow/Calf Operation and Why They Continue to Operate



Graph 4.3 Why High Profit Producers Started Their Cow/Calf Operation and Why They Continue to Operate



Continued Education

All surveyed producers have participated in some form of continuing education, such as workshops, seminars, and reading pamphlets or brochures (Table 4.3).

Table 4.3 Sources of Continued Education

Sources of Continued Education	Low Profit*	Medium Profit	High Profit**
Workshops	2	10	7
Seminars	2	10	6
Read pamphlets/brochures	2	10	7
Internet	1	6	4
TV programs/videotapes	2	7	4
Fairs/Shows	2	0	5
Other	0	0	2

*Total producers in each category Low 2, Medium 10 and High 7.

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

The real benefit of continued education was gained from what the producers learned, not how they acquired the information. When asked what types of general topics producers learned about from these programs or materials, all nineteen producers cited nutrition, breeding, decreasing costs, and increasing profits as the most frequently discussed topics. Producers from all three profitability categories also mentioned range management and record keeping. Only a few high and medium profit producers have attended training courses or read materials about marketing strategy/methods training. Producers from the high profit category took training courses on better resource management and herd health practices, and only medium profit producers

mentioned planning for retirement, waste management skills and analyzing costs as other topics of discussion.

The topics covered in these programs or materials may explain some of the differences among profitability groups. Dunn found that high profit producers had thirty-eight percent less investment per cow, thirty-five percent lower annual cost and twenty percent higher revenues (2000). Resource management, herd health practices and marketing strategy/methods, could explain investment, annual cost and higher revenue. Only high profit producers indicated that they had learned about these topics.

Goals

Sixteen of the beef cow/calf producers surveyed set goals for their operations. A majority of producers who set goals set both short-term and long-term goals. One medium profit producer stated,

> "I wish I could do a better job of it but I've learned over the years to write them down. You know that's something I took for granted, you know. I didn't have to write 'em down, but it does make a difference."

Just one medium profit producer only set short-term goals.

Producers in all three profitability categories set short-term goals for breeding and production percentages for their beef cow/calf operations as indicated in Table 4.4. Common types of goals for breeding and production include pregnancy percentages and weaning weights.

For the high profit producers, breeding goals are the most frequent type of short-term goals. Medium profit producers set repeated short-term goals that focus on breeding, production, and pasture management. Only producers in the high profitability category set short-term goals for nutrition, herd management, and increasing herd size.

Table 4.4 Type of Goals Set by Surveyed Producers

Short-Term Goals	Long-Term Goals
Low Profit Producers*	Low Profit Producers*
Weaning weights	Improve grazing/pasture rotation
Breeding	Decrease debt
Improve facilities	Herd size
Winter preparation	Decrease costs
Medium Profit Producers	Medium Profit Producers
Weaning weights	Increase profit
Breeding	Breeding
Improve grazing/pasture rotation	Improve grazing/pasture rotation
Decrease Debt	Decrease costs
Increase Profit	Resource management
Improve facilities	Conservation practices
Improve record keeping	Performance of cattle (production)
Improve marketing skills	Longevity
Produce a consistent product	
Downsize frame score of cows	
High Profit Producers**	High Profit Producers**
Weaning weights	Breeding
Breeding	Improve grazing/pasture rotation
Improve grazing/pasture rotation	Decrease costs
Decrease Debt	Increase profit
Increase Profit	Improve quality of product
Nutrition	Increase Herd Size
Herd management	
Increase Herd Size	

*Total producers in each category Low 2, Medium 10 and High 7

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

For many producers, several of their long-term goals were the same as their short-term goals (Table 4.4). All fifteen producers that set long-term goals did so to increase profits and improve pasture rotations. High and medium profit producers set long-term breeding goals for their operations, paying special attention to pregnancy percentages, birth weights and to produce a more consistent product.

The most common types of long-term goals set by the high profit producers include improving the quality of the products they produce, making financial progress (profit), and increasing efficiency. Frequent long-term goals set by medium profit producers include generating more profit, improving pasture production, and strengthening cattle performance (production numbers).

Profitability was the most important goal for all low profit producers, five medium profit producers, and two high profit producers. Production goals were the most important for two medium and two high profit producers. One high profit producer named quality of lifestyle as the most important goal, observing that: "The most important goal is to enjoy what I do."

Only three producers, two high profit producers and one medium profit producer did not set goals because they felt the time commitment was too great for the rewards. One high profit producer and one medium profit producer stated the following about choosing not to set goals:

> "I just don't. I keep busy doing other things probably. They don't come true. They don't work out."

> "I think I more tend to look at the opportunity that presents itself, and decide at that point whether that is the direction that I need to go, and so it's more of an opportunity type of decision rather than something that particularly leads me to a certain goal."

The researcher concluded that high and medium profit producers understand how important it was to set goals and how to set up successful goals. High and medium profit producers set effective goals, which were well defined, realistic and measurable. For example, producers from these two categories set a short-term goal to improve pasture rotation versus just setting a goal to decrease production costs. Previous research indicates that written goals provide direction and motivation to reaching goals.

Decisions

Producers were asked to allocate the percentage of physical labor and management functions done by operator, other family members, hired labor and neighbor exchange. A statistically significant difference was found in the percentage of physical labor done by the operator between the three profitability categories. When looking at who was involved in the management functions, such as making decisions, another statistically significant difference was found for operator and other family members. It is important to note that not all the producers were married or had children involved in their operation (Table 4.2). The following table (Table 4.5) shows the percentage of physical labor and management functions done by operator, other family members, hired labor, and neighbor exchange.

Table 4.5 Percentage of Physical Labor and Management Done by Various Sources

	Low Profit**	Medium Profit	High Profit***	Level of Sig
Physical Labor				
Operator	42.50%	80.11%	62.14%	0.041*
Other Family Members	27.50%	13.11%	19.29%	0.472
Hired Labor	27.00%	4.33%	16.14%	0.296
Management				
Operator	50.00%	92.11%	75.71%	0.003*
Other Family Members	40.00%	7.78%	20.00%	0.04*
Hired Labor	10.00%	0.00%	3.57%	0.580

* Significant at the .05 level

**Total producers in each category, Low 2, Medium 10, and High 7

***Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

When asked who performed the task oriented job duties, several producers indicated themselves, other family members and hired labor. When asked who performed the technical duties, such as ration balancing, sire selection, or supervising the farm work of hired labor and family, most producers indicated that they do these types of job duties themselves. This agrees with previous research that more people do the more task oriented job duties, such as harvesting hay, feeding the cattle and equipment maintenance, and that operators perform the more technical job duties themselves. When asked who is involved in the major decisions of the operation, all producers receive advice from their spouse, other family members or expert advice. Such major decisions include buying land or major farm/ranch equipment. This agrees with previous research in that collaborative decision-making is positively correlated to success and that more correlation exists when making decisions that could have a big

impact on the operation's financial situation. Not only is collaborative decision making important, but also the amount of involvement from other family members is important.

Just over half of the producers (eleven of nineteen) indicated that they have plans of action for problem solving (Table 4.6). No high profit producers identify the early signs of stress, relief methods, or the rewards as parts of their plans of action. One medium profit producer who does not identify the early signs of stress said,

> "Actually just working with cows is leisure to me. Baling hay. I worked off the farm so I know what it's like to be on the other side of the fence. See I have a whole new perspective of this since I got off and came back as opposed to being on the farm for years and years and years. So I have learned how to deal with the stress."

Medium profit producers mentioned asking the right questions was an important part of a plan of action. They advised that producers should: "Try to ask the right questions to determine if 'solution mix' is in balance with mission statement."

Table 4.6 Possible Steps Involved in A Plan of Action

Steps	Low Profit*	Medium Profit	High Profit**
ID problem	2	5	3
ID roadblocks	2	5	2
ID stress	2	3	0
ID relief methods	2	4	0
ID possible solutions	2	5	3
ID best solution	2	5	4
ID costs	2	5	3
ID rewards	1	5	0
Other	0	3	0

*Total producers in each category Low 2, Medium 10 and High 7.

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

Eighteen of the producers surveyed continue to evaluate different possible solutions to see if the option they chose remains feasible. When asked how they consider other possible solutions, some producers' responses included examining past experiences, receiving advice from others, running different scenarios and playing a game of solitaire. Some responses follow:

> "I'll probably write a list of pros and cons or if I have to decide between two things I just list things down on paper and try to use that to make a better informed decision. Try to take some of the emotion out of it and make it more objective."
>
> "See if the conditions have changed or were not correctly understood at the start."
>
> "Balance the costs and rewards of the solution and see if they met the needs."

Most producers mentioned that they constantly re-evaluate different solutions: One high profit producers stated, "Well you are constantly re-evaluating to see if you are doing it right or if there is a better way; or if there is a problem, why there is a problem." Only one of the nineteen producers does not re-evaluate other possible solutions because that producer has a high level of confidence regarding their decision-making skills. "Oh, no, not very often. If you do it right to begin with you don't have to. "

Feed consumption and tons of hay harvested were two of the top three most influential records on decision making for high profit producers. Although several other types of records had a greater impact on producer decisions for medium and low profit producers, all three profit groups gave feed consumption

and tons of hay harvested records a similar rating. On a scale of 1 (little use) to 5 (extensive use) the range was from 3.44 to 4.00. Individual pregnancy records and weaning weights were rated high for all producers in decision making, which could be influenced by the number of producers who set production and breeding goals for their cow/calf operation. Table 4.7 reveals a complete listing of how many producers kept and used each type of record in their decision making process. With feed costs explaining over fifty percent of the herd-to-herd variation of profit in previous studies, one can conclude that high profit producers recognize the high feed costs and use records to help keep those costs low.

Table 4.7 Records Kept by Producers and Affect on Decision Making

Type of Record	Low Profit*	Medium Profit	High Profit**	Overall***	Number of Producers That Keep Record
Individual pregnancy records	5.00	4.22	4.17	4.29	17
Weaning Weights	4.50	3.86	3.83	3.93	15
Projected Cash Flow	0.00	4.17	3.60	3.91	11
Livestock Enterprise Budget	0.00	4.25	3.33	3.86	7
Tons of Hay Harvested	4.00	3.44	4.00	3.71	17
Feed Consumption	3.50	3.63	4.00	3.71	14
Income Statement	4.50	3.67	3.50	3.71	17
Months grazing	4.50	3.38	3.60	3.60	15
Actual Cash Flow	5.00	3.33	3.50	3.55	11
Individual calf birth dates	4.00	3.33	3.43	3.44	18
Yearling Weights	4.50	3.00	3.00	3.38	8
Herd Health	3.50	4.17	2.50	3.36	14
Sale Weights	4.00	3.50	2.86	3.32	19
Balance Sheet	2.50	3.22	3.43	3.22	18
Muti-year Statement	3.00	3.43	2.40	3.00	13
Weather data	0.00	3.75	2.00	3.00	7
Tax	2.50	2.20	3.43	2.68	19
Weaning Dates	3.00	2.50	2.50	2.56	18

*Average rating based on the number of producers who keep records with 1 Little and 5 Extensive

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

***Listed in order of the most use to least use overall, not as appeared on survey

Operations

Beef cow/calf producers have several marketing tools available to them. Eight different marketing tools were examined in this study. As Table 4.8 indicates there was a large difference between low profit producers and the other two categories for sale/auction barn and on farm sales. However, one low profit producer is a purebred breeder and the other sells most of their calves to their seed stock operation. A few medium profit producers tried to reduce forward price risk through forward contracting, futures and options.

Table 4.8 Marketing Tools Used by Cow/Calf Producers

Marketing Tool	Low Profit*	Medium Profit	High Profit***
Sale/Auction Barn	1.00	4.40	3.57
N**	2	10	7
Forward Contracting	0.00	4.00	0.00
N	0	2	0
Futures	1.00	2.25	0.00
N	1	4	0
Options	0.00	1.00	1.00
N	0	2	1
Retained Ownership	5.00	4.00	4.67
N	2	9	7
On Farm Sales	5.00	2.67	2.00
N	2	6	4
Special Calf Sales	1.50	2.67	4.50
N	2	2	2
Video Sales	0.00	1.50	2.50
N	0	1	2

*Average Rating Based on N, 0 tool not used to 5 used extensively

**N is the Number of Producer Who Use That Marketing Tool

***Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

A Kendall's Tau correlation statistic was computed to determine the level of correlation between the profitability groups and the marketing tools that producers use. No significant correlation was found. As indicated in the following table (Table 4.9), the strongest correlation was evident between the low and medium profit producers. A low correlation between medium and high profit producers showed that they use different marketing tools for their beef cow/calf operations. The main differences may be attributed to medium profit producers using forward contracting, futures, and options to reduce price risk. In contrast, low profit producers have a different clientele than the medium profit producers.

One low profit producer has a purebred operation and the other sells their calf crop to their seed stock operation.

Table 4.9 Correlation Among Producers and Marketing Tools

Kendall's tau Correlation Coefficient			
	Low Profit	Medium Profit	High Profit
Low Profit	1.000	0.501	0.325
Medium Profit	0.501	1.000	0.103
High Profit	0.325	0.103	1.000

*No significant correlation at .05 level or .01 level

All producers indicate they would expand or improve their cow/calf operation if they received a gift of $100,000. For all three profitability categories producers suggested they would spend the most money on expansion or improvements. High and medium profit producers designated an almost equal amount to savings/investments as they did to expansion or improvements, indicating they are planning for their retirement. Low profit producers delegated over 1/3 of the money to paying down farm/ranch or family debt.

Producers were asked to prioritize their time from a list of seven time management factors associated with their beef cow/calf operations. The producers were instructed to rank the management factors from the most important to the least important, not by how much time is actually spent working on each factor. A Spearman's Rho correlation statistic was calculated to establish the level of correlation among the three profitability groups and how the respective groups ranked each of these seven management factors. Their responses indicated that there is a high correlation regarding time management between the low profit producers and the medium profit producers as well as

between the high and medium profit producers. There was only a slightly lower correlation coefficient between the high and low profit producers. The following table shows (Table 4.10) the correlation coefficients.

Table 4.10 Correlation Among Producers and How They Prioritize Their Time

Spearman's rho Correlation Coefficient			
	Low Profit	Medium Profit	High Profit
Low Profit	1.000	.847*	0.739
Medium Profit	.847*	1.000	.821*
High Profit	0.739	.821*	1.000

*Correlation significant at .05 level (1-tailed)

In all three categories, breeding and reproduction is considered to be the most important management factor. This is not surprising considering the number of producers who set both long and short-term goals to improve their breeding and reproduction programs. Range and haying/forage management is also one of the top three management factors for all three profit groups. Again, this can be expected since several producers set goals for improving their range/pasture management. As indicated earlier, the high feed costs associated with a cow/calf operation may explain why range/pasture management ranks high. Of the seven management factors, high profit producers set goals to improve their record keeping and resource management, but ranked both in the bottom three. High profit producers ranked marketing methods as the lowest even though they have taken training courses or read materials on this topic. Contrary to the belief of previous researchers that marketing strategies/methods are the determining factor to profit, the results of this study indicate the opposite.

Table 4.11 shows the rating of all seven management factors for all three profitability groups.

Table 4.11 Prioritizing Time of Management Factors*

Low Profit Producers	Medium Profit Producers
Breeding & reproduction	Range & haying/forage mgmt
Record keeping/financial analysis	Breeding & reproduction
Range & haying/forage mgmt	Record keeping/financial analysis
Herd Health Mgmt	Herd Health Mgmt
Nutrition & nutritional mgmt	Nutrition & nutritional mgmt
Marketing methods	Stewardship of natural resources
Stewardship of natural resources	Marketing methods
High Profit Producers**	**Overall**
Breeding & reproduction	Breeding & reproduction
Range & haying/forage mgmt	Range & haying/forage mgmt
Nutrition & nutritional mgmt	Nutrition & nutritional mgmt
Herd Health Mgmt	Herd Health Mgmt
Record keeping/financial analysis	Record keeping/financial analysis
Stewardship of natural resources	Stewardship of natural resources
Marketing methods	Marketing methods

*Listed from highest priority to lowest priority

**Low profit producers had ROA < -6.7%, medium had ROA –6.7% to 12.9%, and high had ROA > 12.9%

All nineteen producers generate income from sources other than their cow/calf operations. The most common source of additional income for all three profitability categories is off-farm business or employment. The second most common source of income includes other farming activities such as grain farming, yearling operations, seed stock operations, and various other farming activities. On-farm business ranked third, with representation from only the medium and high profit categories. Examples of on-farm businesses include welding shops, seed dealers, insurance sales, and income from the South Dakota Game, Fish, & Parks Department for deer depredation.

Fifty percent of both the low and medium profit producers use some of their added income to cover cow/calf operation expenses, whereas, 85.7 percent (six of seven) of high profit producers use a portion of that income to help cover their cow/calf operation expenses. Even though a large number of the high profit producers receive income from other sources, 83.3 percent (5 of 6) of those producers use less than twenty-five percent to help with cow/calf operation expenses (Table 4.12).

High profit producers may not use a lot of income from other sources, but they still use it. This extra income was included in the SPA data, therefore having no impact on what profitability category a producer would be in. This extra income may relieve some of the pressure to be profitable for high profit producers. One difference among profitability categories was that high profit producers earn extra income and more of the high profit producers used that extra income towards their operation. This finding was supported by previous research that only fourteen percent of all operations are self sufficient (NAHMS, 1997).

Table 4.12 Producers' Receive Income From Other Sources

Generate Income from other sources other than cow/calf operation	Low Profit*	Medium Profit	High Profit**
Yes	2	10	7
No	0	0	0
What type of activities is other income generated from			
On-Farm Business	0	7	2
Other Farming Activities	1	2	4
Off-Farm Business/Employment	2	5	6
Custom Work	0	0	1
What is other income used for			
Cow/Calf Expenses	1	5	6
Household Expenses	2	9	7
Personal Expenses	2	10	7
Leisure Activities	2	9	6
Other	0	0	1
How much other income is used to cover cow/calf expenses			
0-25%	1	3	5
26-50%	0	1	1
51-75%	0	0	0
76-100%	0	1	0

*Total producers in each category Low 2, Medium 10 and High 7

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

Perceptions

When asked what personal attributes give successful producers an edge in the industry today, producers included these responses: willingness to improve operation; continuing education; diversification of farm/ranch; good management skills; help from family members; an inherited farm/ranch; positive outlook; willingness to change; willingness to seek advice from others; willingness to work

harder than others; and past experience/background in cow/calf operations. In all three profitability categories, good management skills, positive outlooks and willingness to adjust to changing situations were popular responses. Two medium profit producers and one high profit producer observed:

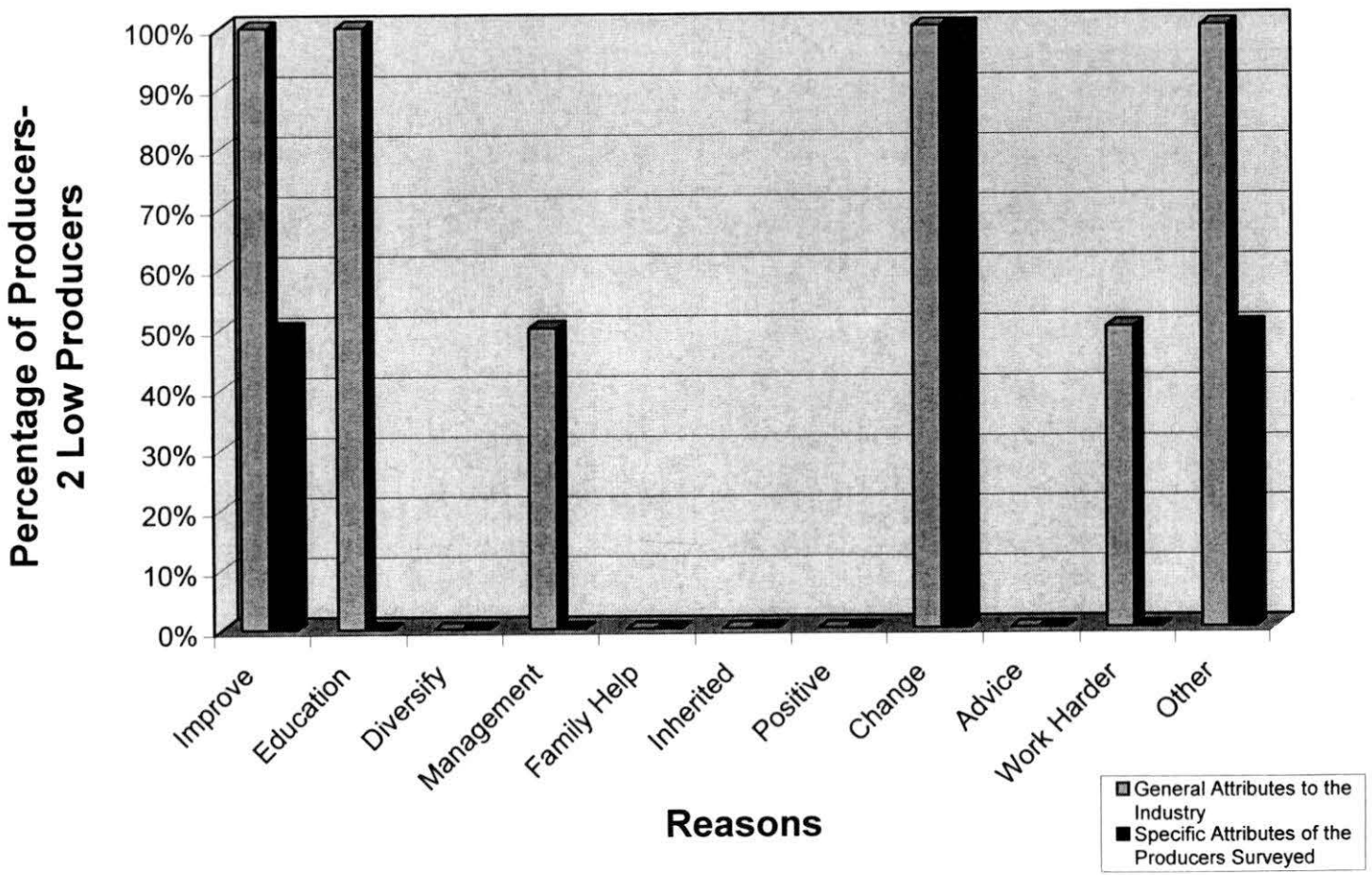
> "I think the desire almost means more than anything else."
>
> "You've got to believe that things are going to work out so that's important and so is perseverance."
>
> "Producers have to understand the animals. They have to understand how to take care of them. That's pretty much it. If you understand it and know how to take care of them then the rest works out."

Two low, four medium and four high profit producers indicated that continuing education was a personal attribute that gave successful producers an edge in the industry today, but overall, only one medium profit producer felt that he/she possesses that attribute. However, all nineteen producers participated in some form of continued training. Forty-three percent of high profit producers felt that collaborative decision-making or willingness to seek advice from others was important. As Graphs 4.4, 4.5, and 4.6 show, producers in all three categories did not feel they possess good management skills.

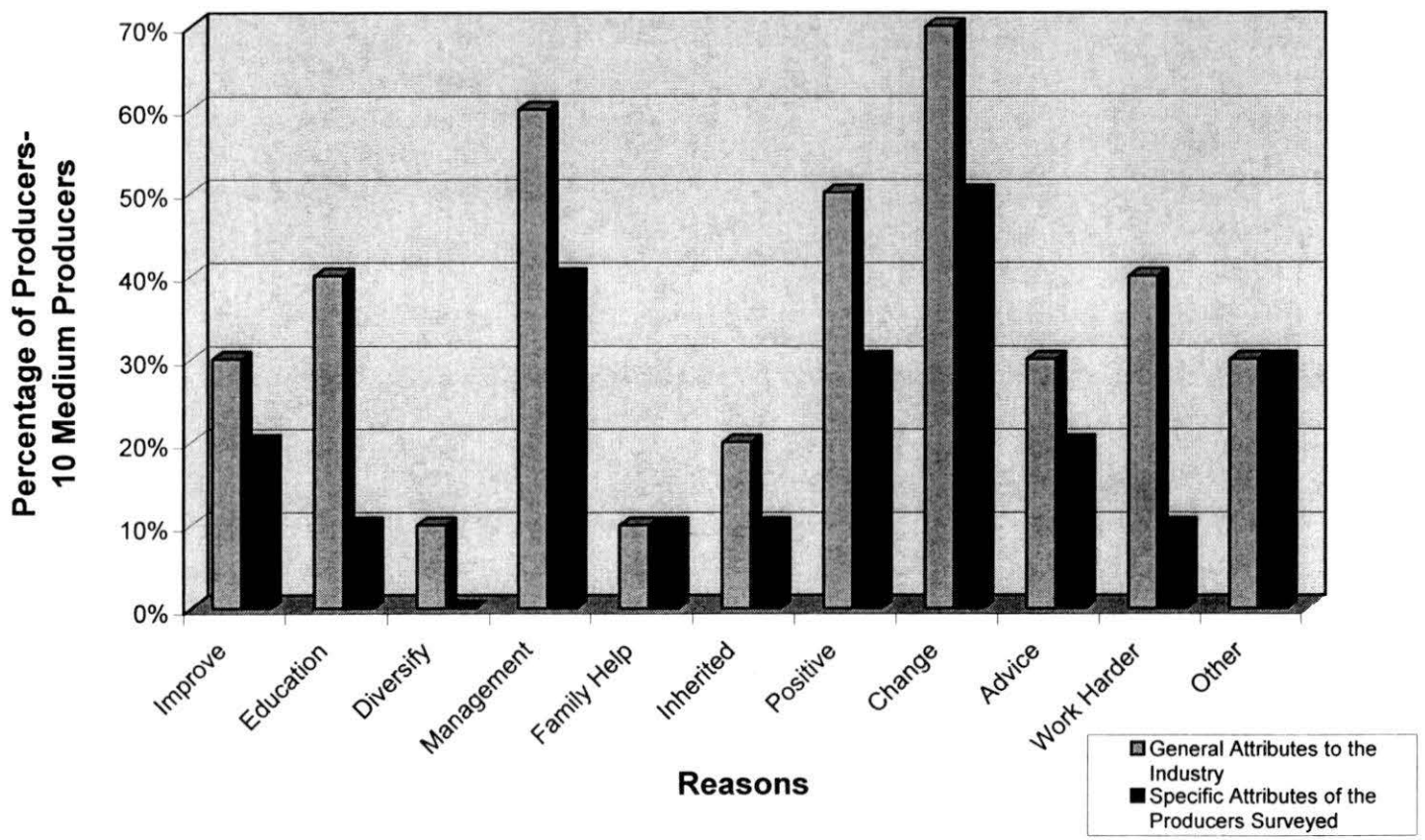
What is learned from this section is that almost all of the high profit producers feel they possess the attributes that are necessary to be successful. Willingness to seek advice from others was higher for the high profit producers than the other two categories, almost double that of medium profit producers. Again, this indicates that collaborative decision-making is an important factor to

higher profitability. Not only is collaborative decision-making important, but seeking advice and gathering information to make better decisions is also important. Not all high profit producers feel they possess the management qualities needed to be a successful beef cow/calf producer, but improving their record keeping systems and management practices were goals set by high profit producers.

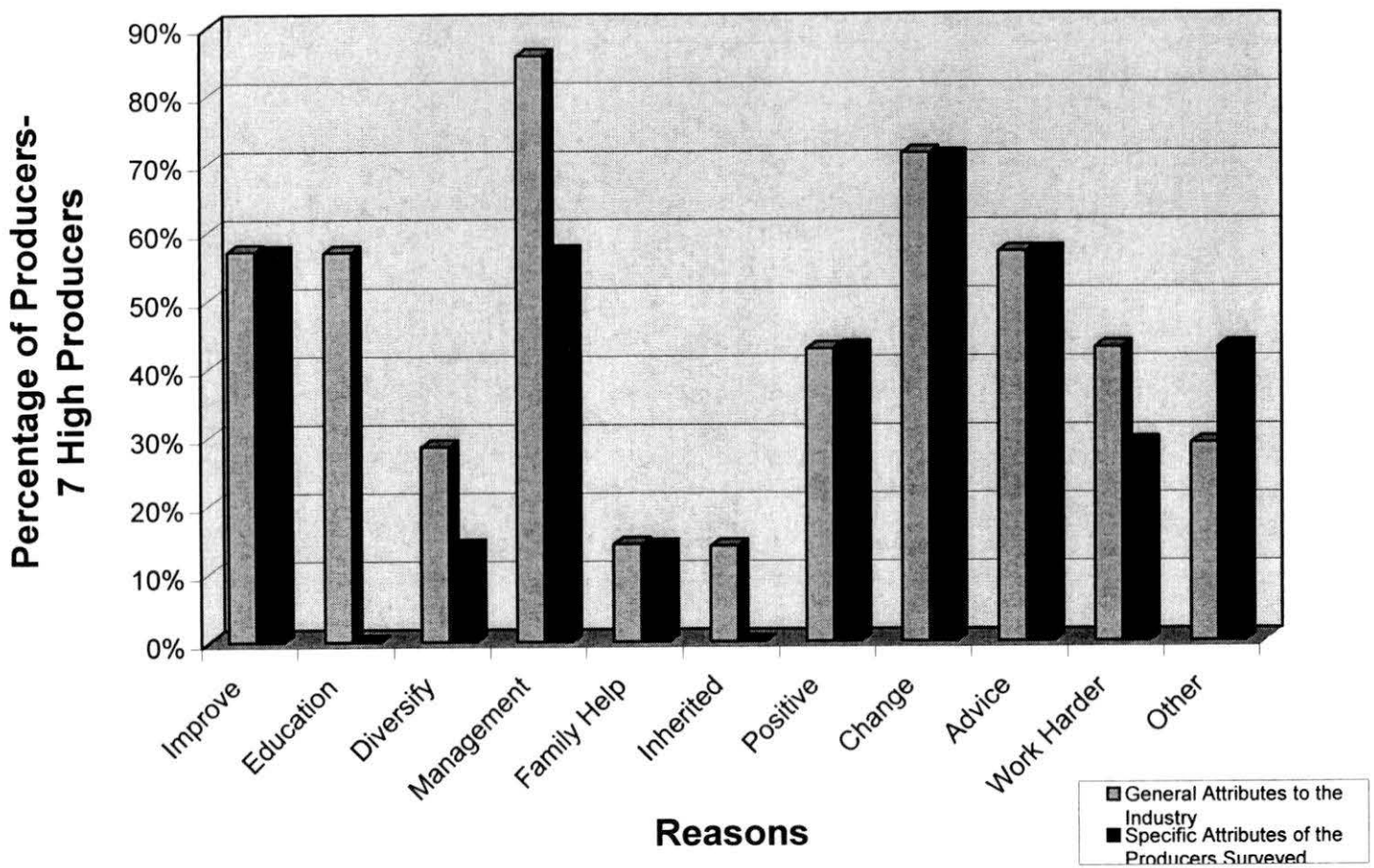
Graph 4.4 What General Attributes Low Profit Produers Think Give Successful Producers an Edge in the Beef Cow/Calf Enterprise and What Attributes They Possess



Graph 4.5 What General Attributes Medium Profit Produers Think Give Successful Producers an Edge in the Beef Cow/Calf Enterprise and What Attributes They Possess



Graph 4.6 What General Attributes High Profit Produers Think Give Successful Producers an Edge in the Beef Cow/Calf Enterprise and What Attributes They Possess



Seventeen of the nineteen producers feel their cow/calf operations are slightly profitable. ROA for those seventeen producers ranged from a negative 9.35 percent to a positive 27.57 percent. Only one high profit producer said his/her operation is very profitable. However, when asked earlier, both low, two medium and two high profit producers indicated that they are still cow/calf operators because it is profitable.

When asked if their beef cow/calf operations provided a solid income, half of the low and medium profit producers agreed, and just less than half (three of seven) of the high profit producers agreed. Four medium and two high profit producers disagreed with this statement. Almost all producers felt that their operations were only slightly profitable, but nine of the nineteen producers felt that their operations provide good incomes. Four producers neither agreed nor disagreed. This may indicate that there was not a consistent understanding or definition of what profitability means among the producers surveyed. Their tax records may also skew producers' view of profitability. Several producers indicated that their amount of taxes due may impact their marketing decisions. Producers may hold their calf crop, even during periods of higher prices to prolong paying taxes on that sale for another year.

Most of the producers agree that cow/calf operations are good places to raise a family, and if they were starting over today, this is where they would want to be (Table 4.13). Again, most producers feel their operations offer them a chance to put their own ideas into operation, as indicated by this medium profit

producer's quote: "Yeah, that's true. I think that's probably the most important thing for a lot of people." This section supports earlier findings that these producers are not operating for the money, but for other reasons, such as the lifestyle.

Table 4.13 Producers' Perception of Their Cow/Calf Operation

How profitable do you feel your operation is	Low Profit*	Medium Profit	High Profit**
Not Profitable	0	0	0
Break-Even	0	1	0
Slightly Profitable	2	9	6
Very Profitable	0	0	1
Your cow/calf operation:			
Provides a good income	1	5	3
Agree	1	1	2
Neither Agree nor Disagree	0	4	2
Disagree			
Is an ideal place to raise a family			
Agree	2	9	7
Neither Agree nor Disagree	0	1	0
Disagree	0	0	0
Offers you a chance to put your own ideas into operation			
Agree	2	10	7
Neither Agree nor Disagree	0	0	0
Disagree	0	0	0
Is where you would want to be if you were starting over today			
Agree	2	8	5
Neither Agree nor Disagree	0	0	1
Disagree	0	2	1

*Total producers in each category, Low 2, Medium 10 and High 7

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

Nearly all producers plan to operate their cow/calf operations until they retire. However, several producers in the medium and low profitability groups are unsure of who will operate their cow/calf operations when they retire. Most producers feel unsure because they have very young children or their children have already expressed their lack of interest in maintaining the operation. All the high profit producers are confident of what will happen to their operations, which could indicate that succession plans are already in place. One high profit producer whose children do not plan to take over the operation said, "I hope to have enough retirement income to retire and be able to give some young person a break in this business."

No matter what profitability category all nineteen producers felt it was likely that they would still be producing in three years and even in ten years, with the exception of two producers who plan to retire within ten years. Those same producers who felt their operations were only slightly profitable also felt secure enough to say they would still be in business ten years from now. Every one of the producers surveyed felt confident that enough funding would be available for the next year's expenses. Their confidence was established by strong financial ratios, good working relationships with their banks and the belief that the income they receive from sources other than their cow/calf operations were sufficient to help cover expenses. Seven medium profit producers felt they had good

financial ratios since they had little debt, high equity levels and high asset bases (Table 4.14).

Table 4.14 Producers' Perceptions On Retirement

Do you plan to operate your operation until you retire	Low Profit*	Medium Profit	High Profit**
Yes	1	10	7
Unsure	1	0	0
No	0	0	0
What do you expect to happen to your cow/calf operation after you retire			
Sold to others	1	3	1
Operated by your children	0	1	4
Remain in family, but operated by others	0	0	2
Unsure	1	6	0
How likely is it that you will still be producing in three years			
Likely	2	10	7
Not Sure	0	0	0
Unlikely	0	0	0
Retirement	0	0	0
How likely is it that you will still be producing in ten years			
Likely	2	8	7
Not Sure	0	0	0
Unlikely	0	0	0
Retirement	0	2	0
How confident are you in securing adequate funding for next year's expenses			
Not Confident	0	0	0
Somewhat Confident	0	0	0
Very Confident	2	10	7
Why are you _____ confident			
Financial Ratios	0	7	2
Good Relationship with bank(er)	1	3	4
Receive Income from other sources	1	0	1

*Total producers in each category, Low 2, Medium 10 and High 7

**Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

SWOT

Strengths, Weaknesses, Opportunities and Threats (SWOT) comprised the final section of the survey. For this study, strength was defined as something cow/calf producers were good at or a characteristic that gave them an advantage. Strengths and weaknesses were something internal that the operation controls. A weakness was something cow/calf operations lacked or did poorly, or a condition that put operations at a disadvantage. An opportunity was from the environment or an element outside of the operation, usually referred to as avenues for growth or the potential for a competitive edge. Threats were also from the environment or occurred outside of the operation, such as a rival or the government.

The researcher calculated the mean and standard deviation for each element within the SWOT section of the survey. Due to limited variation among the means, data were collapsed. Means and standard deviations were recalculated with collapsed data. There was still little difference between the means.

Similar types of elements were grouped together. For example, data from the question about strengths and weaknesses regarding their cow/calf operation was condensed into three categories titled resources, marketing, and debt. Elements included in the resource category were management, facilities, operator education, and long-term planning. Marketing elements included location to market, and marketing skills. Debt management was the only element

in the debt category. The employees element was excluded since only a small number of producers have employees. A Kendall's Tau correlation statistic was computed to define the correlation between the high, medium and low profitability groups and the condensed element categories, shown in the following table.

Table 4.15 Correlation Among Producers and Strengths/Weakness Regarding Their Cow/Calf Operation

Kendall's tau Correlation Coefficient			
	Low Profit	Medium Profit	High Profit
Low Profit	1.000	0.150	0.205
Medium Profit	0.150	1.000	0.513
High Profit	0.205	0.513	1.000

*No significant correlation at .05 level or .01 level

Table 4.18 shows the average rating of each element for all three profitability categories, as well as an overall rating for the data set. The elements listed from what was considered to be the greatest strength/opportunity to what was considered to be the greatest weakness/threat.

Low profit producers rate operator education, facilities, location to market and marketing skills as a greater strength than either medium of high profit producers. Their age and education level could explain their higher rating. Low profit producers have the lowest average age and the highest average education level.

Data from the question about opportunities and threats regarding their cow/calf operation was collapsed into four groups, excluding agricultural policy and humane treatment of animals. The four groups were economics, information, land, and agribusiness. Economics included the elements of

consumer demand, international trade, access to capital, access to market outlets and production technology. Information elements include access to information, internet and computers. Land elements include natural resource management and access to land for lease or for purchase. Agribusiness' only element is large agribusinesses. A Kendall's Tau correlation statistic was computed to determine the correlation between the three profitability categories and the economics, information, land and agribusiness categories.

Table 4.16 Correlation Among Producers and Opportunities/Threats Regarding Their Cow/Calf Operation

Kendall's tau Correlation Coefficient			
	Low Profit	Medium Profit	High Profit
Low Profit	1.000	0.720*	0.850*
Medium Profit	0.720*	1.000	0.859*
High Profit	0.850*	0.859*	1.000

*Correlation significant at .01 level (2-tailed)

In general, the producers view access to information, internet and computers, and production technology to be strong opportunities for their cow/calf operations. They see international trade, agricultural policies and large agribusinesses as a moderate to strong threat.

Elements from the question about strengths and weakness regarding their personal characteristics were condensed into three groups: time, flexibility, and skills. Time included time management, self-motivation, prioritizing, ability to motivate others, market savvy, and attention to detail elements. Flexibility elements included information management and flexibility. The skills group included leadership skills and strategic thinking/long-term planning. Overall, the

producers rate their personal characteristics as a moderate to strong strength (Table 4.18).

The correlation statistic between low and high profit producers was statistically significant meaning that producers from both categories had similar rankings for their personal attributes. Earlier, medium and high profit producers had similar ratings for the strengths and weaknesses for their operation, but in regards to personal characteristics there was a low correlation. This could mean that medium profit producers attribute their strengths to others involved in their operation.

Table 4.17 Correlation Among Producers and Strengths/Weakness Regarding Their Personal Characteristics

Kendall's tau Correlation Coefficient			
	Low Profit	Medium Profit	High Profit
Low Profit	1.000	0.104	.569*
Medium Profit	0.104	1.000	0.277
High Profit	.569*	0.277	1.000

*Correlation significant at .01 level (2-tailed)

Table 4.18 Weighted Average Rating of SWOT Analysis

Do you view the following as a strength or a weakness in regards to your cow/calf operation	Low Profit*	Medium Profit	High Profit***	Overall
Management**	4.50	3.90	4.14	4.05
Debt Management	3.50	4.20	4.00	4.05
Operator education	4.50	3.80	3.71	3.84
Facilities	5.00	3.20	3.71	3.58
Long-term Planning	4.00	3.40	3.43	3.47
Location to Market	4.50	3.60	2.86	3.42
Marketing Skills	1.50	3.20	3.43	3.11
Employees	3.00	1.10	1.57	1.47
Do you view the following as an opportunity or a threat in regards to your cow/calf operation				
Access to Information	4.50	4.30	4.57	4.42
Internet and Computers	4.50	4.20	4.29	4.26
Production Technology	4.50	4.20	4.29	4.26
Consumer Demand	4.50	3.90	4.14	4.05
Access to Capital	4.00	3.60	4.00	3.79
Speciality Markets	3.50	3.30	3.43	3.37
Natural Resource Management	3.50	3.20	3.43	3.32
Access to land for lease or purchase	4.00	2.60	3.43	3.05
Access to Market Outlets	3.50	2.80	3.29	3.05
Humane Treatment of Animals	2.50	3.10	3.00	3.00
International Trade	1.50	2.50	3.00	2.58
Agricultural Policy	1.50	2.60	2.86	2.58
Large Agribusiness	2.50	1.90	2.29	2.11
Do you view the following as a strength or a weakness in regards to your personal characteristics				
Self-Motivation	5.00	4.00	4.29	4.21
Problem Solving Skills	4.00	4.30	4.00	4.16
Flexibility	3.50	4.10	3.86	3.95
Strategic Thinking/Long Term Planning	4.00	3.90	3.71	3.84
Leadership Skills	4.50	3.30	3.86	3.63
Attention to Detail	4.50	3.10	4.00	3.58
Prioritizing	3.00	3.40	3.71	3.47
Communication Skills	3.50	3.40	3.29	3.37
Information Management	3.50	3.40	3.20	3.37
Time Management	4.00	2.70	3.71	3.21
Market Savey	3.00	3.00	3.57	3.21
Ability to Motivate Others	3.00	3.00	3.14	3.05

***Based on a scale of 1-5, 1 was strong weakness/threat and 5 was strong strength/opportunity**

** Listed in order of overall rating score, not as appear on survey

***Low profit producers had ROA < -6.7%, medium had ROA -6.7% to 12.9%, and high had ROA > 12.9%

Summary

This chapter reviews the information gained from this study and its significance. Conclusions, limitations of the study and recommendations for further research are found in the next chapter.

Chapter V

Conclusions

This chapter provides a summary of the research objectives, research methodology and data analysis and findings. In addition research implications, limitations of the study and recommendations for further research are provided.

Summary

The overall objective of this research was to determine if there were any significant differences in personal characteristics and management factors among low, medium, and high profitability producers in South Dakota.

A combination of qualitative and quantitative research methods were used to determine profitability determinants of South Dakota's beef cow/calf enterprise. A semi-standardized survey was developed and the researcher conducted personal interviews. Due to the small census population and the uneven distribution of producers in low, medium, and high profitability categories, descriptive analysis and nonparametric correlations were deemed appropriate for this data set.

A statistically significant difference was found among profitability groups for the percentage of physical labor and management factors performed by the operator. The percentage of management done by other family members was statistically significant. This indicated that higher operator involvement was

associated with higher profitability, but a certain amount of involvement from other family members was also important.

Producers' views on their opportunities and threats were statistically correlated. In general, producers viewed access to information, production technology and internet and computers as strong opportunities for their operation. They regarded agricultural policy and large agribusiness as threats. Overall, producers viewed their personal characteristics as strengths, but their ratings were not significantly correlated. When taking into consideration their entire operation, low profit producers saw their educational level, facilities and location to market as stronger strengths than did either the medium or high profit producers, but not at statistically significant levels.

Sixteen of the nineteen beef cow/calf producers surveyed operate as sole proprietorships. This suggests that these producers may not realize the advantages of a corporate structure. Producers are not taking advantage of the risk, inheritance, or tax protection available to them under a corporate structure.

High profit producers appeared to be more conscious of keeping feed costs low through their training courses or materials, decision-making techniques, goal setting, and record keeping. All these management factors interlink with each other and create a better understanding of what factors determine profitability. No significant differences were found in relation to risk taking, intuition, marketing tools or management style.

This research offers insight regarding profitability determinants other than the size of the operation, financial ratios, and investment dollars. Such determinants include how a cow/calf producer makes management decisions, sets goals, and determines the proper marketing strategy. Extension specialists and special interest groups, such as the South Dakota Cattleman's Association, may use the results to develop educational programs tailored to the cow/calf producer's interests and needs. This study may also influence course content at land grant universities.

Limitations

A relatively small census population and the uneven distribution of producers in low, medium, and high profitability categories, made it difficult to perform inferential statistics on this data set. One would not expect to find a normally distributed population in an economic study. Producers with a negative 27.57 percent ROA are not likely to still be producing.

The research protocol was set up to conduct individual interviews. Due to circumstances beyond the researcher's control one group interview was conducted. In this situation, the researcher fielded questions and facilitated discussion. The interview setting allowed for the producers to respond freely and the researcher did not feel this setting altered their responses.

The researcher started with novice interview skills, but quickly developed the abilities needed to conduct the interviews. This had the potential to result in

missed information and inconsistent interviews, but the researcher did not feel there were any negative impacts on this research.

The high, medium and low profitability categories were determined by the producers' ROA for their cow/calf operation. ROA is an efficiency measure, defined as net income divided by average total assets. Profit was defined as "dollars available to family living, hired management, unpaid family labor and to capital" (Dunn, 2000:82). Although profitability may alternatively be measured using criteria such as return on equity or operating profit margin, ROA was selected as the most appropriate measure for this study as it was consistent with how profitability was measured in SPA. How one defines profitability could potentially impact the placement of producers in the various profitability categories. The profitability classifications were determined based upon the results of the 2000 Standardized Performance Analysis. Although the findings suggest areas for further discussion and analysis, generalizability from these findings would be inappropriate due to the constraints of one year's ROA determination and a small census population.

Recommendations for Further Research

After researching this study, the researcher believes more studies of similar nature would yield a richer, more developed database. The continued use of a semi-standardized survey questionnaire will help researchers find the

missing links to previous studies and help to answer the profitability question, which is "Why are some producers more profitable than others?"

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Appendix A

Qualitative Profitability Determinants in the Beef Cow/Calf Enterprise Survey

Qualitative Profitability Determinants in the Beef Cow/Calf Enterprise

Name_____
Date_____
Location of Interview_____
Date SPA completed_____

Several studies have been conducted on farm profitability that deal with size and numbers. This survey/interview is designed to look at the qualitative or non-numerical side of profitability for beef cow/calf producers.

Demographics

This first section contains general questions about your background and your history as a beef cow/calf producer.

1. Why did you become a cow/calf producer? *(*open-ended question, interviewer will check all that apply*)*
   _____1. Enjoy the farm/ranch life
   _____2. Diversify the operation
   _____3. Raised on the farm/ranch, wanted to take over family operation
   _____4. Limited options
   _____5. Desired status of cow/calf producer
   _____6. Investment opportunity
   _____7. Other _____

2. What year did you start?_____

3. What are some reasons why you are still a cow/calf producer?

4. Under what type of organization do you operate your cow/calf operation? *(forced choice question)*
   _____ 1. A family proprietorship
   _____ 2. A sole proprietorship
   _____ 3. A partnership
   _____ 4. A family held corporation
   _____ 5. Other (please specify)_____

5. Please allocate the percent of labor used on your operation that is provided by the following sources (for actual physical labor and management separately): *(producer was given two lists)*
   Percent
   _____1. Operator
   _____2. Other family members
   _____3. Hired labor
   _____4. Neighbor exchange
   _____5. Other (please specify)_____
   = 100% Total

6. About how many hours per week do you spend working on your beef cow/calf operation?

	Under 20	21-40	41-60	Over 60
Spring	1	2	3	4
Summer	1	2	3	4
Fall	1	2	3	4
Winter	1	2	3	4

7. What percentage of your **gross income** is generated by your cow/calf operation?
   _____1. 0-30% _____2. 31-60%
   _____3. 61-90% _____4. 91-100%

8. What is your age?
   ____1.Under 30 ____2.31-40 ____3.41-50
   ____4.51-60 ____5.61-70 ____6.71 & over

9. What is your current marital status?
   1. Single, never married
   2. Married
   3. Separated or divorced
   4. Widowed

10. How many children do you have?
    1. 0 4. 3 7. 6
    2. 1 5. 4 8. 7
    3. 2 6. 5 9. 8 or more

If the producers has children answer #11 and #12. If the producer does not have children skip to #13.

11. What are the ages of your children?

12. How many of your children are involved in the cow/calf operation?
    1. 0 4. 3 7. 6
    2. 1 5. 4 8. 7
    3. 2 6. 5 9. 8 or more

13. What is the highest grade level/degree you have completed? *(open-ended)*
    1. Eighth Grade 4. Bachelor's Degree
    2. Twelfth Grade 5. Advanced Degree
    3. Associate Degree 6. Other_____

14. Have you completed any of these sources of training *(forced choice, read to the producer)*
    1. Workshops
    2. Seminars
    3. Reading pamphlets/brochures
    4. Internet
    5. TV programs/videotapes
    6. Fairs and shows
    7. Other (specify)_____

15. What did you learn from the training?

Goals/Decisions

This next series of questions asks about your goal setting and decision making techniques regarding your beef cow/calf operation.

16. Do you set goals?
1.Yes 2.No

If yes to #16 then answer #17 through #21.
If no to # 16 then skip to #22.

17. Are the goals that you set short-term, long-term or both?

18. What areas of your cow/calf operation do you set short-term goals for?

19. What areas of your cow/calf operation do you set long-term goals for?

20. What would you say is your most important goal?

21. Please give an example of a decision you have made to work towards that goal.

22. Please tell me a bit about why you do not set goals?

23. Who is involved in the decision making process for your operation? For each of the following types of decisions, please indicate who is involved in the decision process, or if the decision has never come up. (*forced choice with multiple answers possible)*

Note: **Other** family members are involved in the decision making process
Note: Outside **expert** advice
Note: **Op** is Operator

	Op	Spouse	Other	Never	Expert
Buy or sell pasture land	1	2	3	4	5
Lease more or less pasture land	1	2	3	4	5
Buy major farm/ranch equipment	1	2	3	4	5
Type of breeding program to use	1	2	3	4	5
When to cull cows	1	2	3	4	5
Buy or sell cattle	1	2	3	4	5

24. Farm families have many responsibilities. Of the following duties, please indicate who performs the duty or if the duty is not done: (*forced choice with multiple answers possible*)

Note: **Other** family members perform the duty

	Op	Spouse	Other	Hired Labor	Not Done
Harvesting hay	1	2	3	4	5
Feeding the cattle	1	2	3	4	5
Purchasing major farm/ranch supplies or equipment	1	2	3	4	5
Marketing cattle and products to buyers	1	2	3	4	5
Setting farm/ranch goals	1	2	3	4	5
Supervising the farm work of family or hired labor	1	2	3	4	5
Equipment maintenance and repair	1	2	3	4	5
Ration balancing for the cattle herd	1	2	3	4	5
Setting family goals	1	2	3	4	5
Managing the cattle herd	1	2	3	4	5
Sire selection	1	2	3	4	5
Herd health management practices	1	2	3	4	5

25. Do you have a plan of action for problem solving?
1.Yes 2.No

26. Please describe to me what your plan of action is for problem solving?(*forced choice question, producer was given a list)*
    1. Identify the problem
    2. Identify the roadblocks
    3. Identify early signs of stress
    4. Identify relief methods
    5. Identify the possible solutions
    6. Identify the best solution
    7. Identify the costs
    8. Identify the rewards
    9. Others_____

27. Do you re-evaluate the different possible solutions to see if the solution you have chosen is still a feasible option?
    1.Yes 2.No

28. If yes, tell me about how you re-evaluate the solution?

Intuition and Risk

The role of intuition in decision-making has been receiving attention. Intuition is basically a hunch, going with your gut feeling. The next few question refer to intuition and risk.

29. How intuitive do you see yourself while making decisions?

    1.Not intuitive 2.Somewhat intuitive
    3.Very intuitive

If answer to #29 is 2 or 3 then answer #30 and #31. If answer to #29 is 1 then skip to #31.

30. Please provide an example of when you have used intuition in making a decision?

31. Can you give me an example of when you did not use intuition and wish you had?

32. Since intuition was not a deciding factor to _____, what influenced your decision to _____.

33. In relation to dealing with risk how would you characterize yourself? *(forced choice question)*
    1. I tend to take on substantial levels of risk in my cow/calf operation.
    2. I tend to avoid risk when possible in my cow/calf operation.
    3. I neither seek nor avoid risk in my cow/calf operation.

34. Please provide me with an example of why you believe yourself to _____ in your cow/calf operation.

35. How often do you consult an expert in making decisions with respect to your cow/calf operation? *(forced choice question)*
    1. Never
    2. One to three times per year
    3. More that three times per year

36. Please tell me about your herd health program? (*looking for vaccination program, how closely producer works with vet, etc...)*

Operations

The next set of questions asks about you marketing and management strategies.

37. Of the following marketing tools for your cattle herd, which have you used in the past? (*the producer was asked part I, and if answer was 1, then parts II and III were asked)*
Y = Yes **N**=No **L**=Little **E**=Extensive
U=Unsuccessful **S**=Successful

	I. Used?		*II. If yes, extent of use*					*III. If yes, range of success*				
	Y	**N**	**L**				**E**	**U**				**S**
Sale/auction barn	1	2	1	2	3	4	5	1	2	3	4	5
Forward contracting	1	2	1	2	3	4	5	1	2	3	4	5
Futures	1	2	1	2	3	4	5	1	2	3	4	5
Options	1	2	1	2	3	4	5	1	2	3	4	5
Heifer Retention	1	2	1	2	3	4	5	1	2	3	4	5
On farm sales	1	2	1	2	3	4	5	1	2	3	4	5
Special calf sales	1	2	1	2	3	4	5	1	2	3	4	5
Video sales	1	2	1	2	3	4	5	1	2	3	4	5

38. For the following types of records, please indicate whether the records are kept and how much they are used in your decision making process. (*the producer was given a visual list and if answer to part I was 1, then part II was asked*)

	I. Are they kept?		*II. If yes, range of use in decision-making*				
	Y	**N**	**None**				**Extensive**
Balance sheet	1	2	1	2	3	4	5
Income statement	1	2	1	2	3	4	5
Actual cash flow	1	2	1	2	3	4	5
Projected cash flow	1	2	1	2	3	4	5
Multi-year statement	1	2	1	2	3	4	5
Tax	1	2	1	2	3	4	5
Individual calf birth dates	1	2	1	2	3	4	5
Weaning weights	1	2	1	2	3	4	5
Yearling weights	1	2	1	2	3	4	5
Livestock Enterprise Budgets	1	2	1	2	3	4	5
Individual pregnancy records	1	2	1	2	3	4	5
Weaning dates	1	2	1	2	3	4	5
Sales weights	1	2	1	2	3	4	5
Herd health	1	2	1	2	3	4	5
Feed consumption	1	2	1	2	3	4	5
Tons of hay harvested	1	2	1	2	3	4	5
Months grazing	1	2	1	2	3	4	5
Weather data	1	2	1	2	3	4	5

39. Based on how you prioritize your time, please rank the following from 1 (highest) to 7 (lowest) (*producer was given a visual list*).

_____1. Record keeping/Financial analysis
_____2. Breeding & reproduction
_____3. Range & haying/forage management
_____4. Stewardship of natural resources
_____5. Herd health management
_____6. Marketing methods
_____7. Nutrition & nutritional management

40. Let's assume you received a gift of $100,000 to use in your cow/calf operation. How much would you use for each of the following purposes? (*producer was given a visual list*)

Dollars

_____1. Expand operation
_____2. Improve operation
_____3. Leisure/vacation
_____4. Major household purchases
_____5. Pay down family debt
_____6. Pay down farm/ranch debt
_____7. Savings/investment
_____8. Other (please specify)_____

41. Do you or another member of your family generate any income from sources other than your cow/calf operation?

1. Yes 2. No

42. If yes, what are the activities? *(forced choice question)*

_____1. On-farm bus (bus located on the farm)
_____2. Other farming activities
_____3. Off-farm business/employment
_____4. Custom work (off the farm)

43. Do you use any of the other income you just mentioned for any of the following purposes: (*forced choice*)

1. Cow/calf operation expenses
2. Household expenses
3. Personal expenses
4. Leisure activities
5. Other (specify)_____

Only ask #44 if 1 was an answer to #43.

44. How much of the other income mentioned in #41 is used to cover cow/calf operation expenses?

_____1. 0-25% _____3. 51-75%
_____2. 26-50% _____4. 76-100%

Perceptions

The next series of questions deal with your opinion of the beef cow/calf enterprise in general and your operation specifically.

45. In general, what personal attributes give successful producers an edge in the cow/calf enterprise? (*open-ended, interviewer marked all that applied*)

_____1. Always looking for ways to improve operation
_____2. College education
_____3. Diversity of operation
_____4. Good management practices
_____5. Help of the family
_____6. Inherited farm or ranch
_____7. Positive outlook on the future
_____8. Willingness to adjust to changing situations
_____9. Willingness to listen to advice from others
_____9. Willingness to work harder than others
_____10. Other (please specify)
_____

46. Which of the factors you have just mentioned do you believe you possess?

47. How successful, in terms of profitability, do you feel your beef cow/calf operation is? *(forced choice question)*

1. Not profitable
2. Break-even
3. Slightly profitable
4. Very profitable

48. Please tell me if you **A**gree, **D**isagree or **N**either agree or disagree with the following statements in regards to your cow/calf operation.

OUR COW/CALF OPERATION

	A	N	D
a) Provides a good income.	1	2	3
b) Is an ideal place to raise a family.	1	2	3
c) Offers me a chance to put my own ideas into operation.	1	2	3
d) Is where I would want to be if I were starting over today	1	2	3

49. Do you plan to operate your beef operation cow/calf operation until you retire?

1. Yes 2. Unsure 3. No

If answer to #49 is 1 or 2, then answer #50 and #51. If answer to #49 is 3, then skip to #52.

50.What do you expect to happen to your beef operation after you retire? *(open-ended)*

1. Farm will be sold to others
2. Farm will be operated by your children
3. Farm will remain in family, but operated by someone other than your children
4. Unsure

51. Why do you feel that your beef operation will be _____ after you retire?

52. Considering your cow/calf operation's overall financial situation, how likely is it that you will still be producing: (*forced choice*)

	3 years from now	**10 years from now**
Likely	1	1
I'm not sure	2	2
Unlikely	3	3
Retirement	4	4

53. How confident are you in securing adequate funding for your beef operating expenses next year? *(forced choice)*

1. Not Confident 2. Somewhat Confident 3. Very Confident

54. Why are you _____ confident about securing funding for next year's expenses?

SWOT

The next three questions involve a SWOT analysis of your cow/calf operation. SWOT stands for Strengths, Weaknesses, Opportunities and Threats. Each term is defined as follows:
Strengths: something a cow/calf operation is good at, or a characteristic that gives it an advantage. A strength is internal, something the operation has control over.
Weaknesses: something a cow/calf operation lacks or does poorly, or a condition that puts it at a disadvantage. A weakness is also internal.

55. Regarding your cow/calf operation, do you view the following as strengths or weaknesses? (*review definitions from above*)

	Weakness			**Strength**		
Management	1	2	3	4	5	N/A
Facilities	1	2	3	4	5	N/A
Debt management	1	2	3	4	5	N/A
Location to market	1	2	3	4	5	N/A
Operator education	1	2	3	4	5	N/A
Marketing skills	1	2	3	4	5	N/A
Long-term planning	1	2	3	4	5	N/A
Employees	1	2	3	4	5	N/A

Opportunity: From the environment or outside of the operation, usually refers to avenues for growth and potential for competitive edge
Threats: From the environment or outside of the operation, such as rivals and the government

56. Regarding your cow/calf operation, do you view the following as opportunities or threats?

	Threat			**Opportunity**	
Consumer demand	1	2	3	4	5
International trade	1	2	3	4	5
Access to capital	1	2	3	4	5
Industry segmentation	1	2	3	4	5
Access to information	1	2	3	4	5
Large Agribusiness	1	2	3	4	5
Access to market outlets	1	2	3	4	5
Humane treatment of animals	1	2	3	4	5
Natural resource management	1	2	3	4	5
Agricultural policy	1	2	3	4	5
Access to land for lease or purchase	1	2	3	4	5
Internet and computers	1	2	3	4	5
Production technology	1	2	3	4	5

57. Everyone possess different qualities. Regarding your personal characteristics, do you view the following as strengths or weaknesses? (*review definitions from introduction*)

	Weakness				**Strength**
Time management	1	2	3	4	5
Self-motivation	1	2	3	4	5
Leadership skills	1	2	3	4	5
Communication skills	1	2	3	4	5
Prioritizing	1	2	3	4	5
Information management	1	2	3	4	5
Ability to motivate others	1	2	3	4	5
Strategic thinking/Long term planning	1	2	3	4	5
Problem-solving skills	1	2	3	4	5
Flexibility	1	2	3	4	5
Market Savvy (understanding the market)	1	2	3	4	5
Attention to detail	1	2	3	4	5

Thank you for your time and input. The results of this survey will become a part of my thesis. These results will become public record with the publication of my thesis. I hope the results will become a useful resource tool for producers and extension specialists. Again, thank you for your time.

[1] Survey was conducted during a personal interview with the producer.

* Italicized areas in parenthesis describe the technique used by the interviewer.

Name_____
Date_____

Operational (Physical Labor)

Question #5

Percent

_____1. Operator
_____2. Other family members
_____3. Hired labor
_____4. Neighbor exchange
_____5. Other (please specify)_____
= 100% Total

Name_____
Date_____

Management

Question #5

Percent

_____1. Operator
_____2. Other family members
_____3. Hired labor
_____4. Neighbor exchange
_____5. Other (please specify)_____
= 100% Total

Name_____
Date_____

Question #26

1. Identify the problem
2. Identify the roadblocks
3. Identify early signs of stress
4. Identify relief methods
5. Identify the possible solutions
6. Identify the best solution
7. Identify the costs
8. Identify the rewards
9. Others_____

Name_____
Date_____

Question #38

Balance sheet
Income statement
Actual cash flow
Projected cash flow
Multi-year statement
Tax
Individual calf birth dates
Weaning weights
Yearling weights
Livestock Enterprise Budgets
Individual pregnancy records
Weaning dates
Sales weights
Herd health
Feed Consumption
Tons of hay harvested
Months grazing
Weather data

Name_____
Date_____

Question #39

_____1.Record keeping/Financial analysis
_____2.Breeding & reproduction
_____3.Range & haying/forage management
_____4.Stewardship of natural resources
_____5.Herd health management
_____6.Marketing methods
_____7.Nutrition & nutritional management

Name_____
Date_____

Question #40

Dollars

_____1.Expand operation
_____2.Improve operation
_____3.Leisure/vacation
_____4.Major household purchases
_____5.Pay down family debt
_____6.Pay down farm/ranch debt
_____7.Savings/investment
_____8.Other (please specify)_____

Appendix B

Coding Scheme for Data Analysis:

Types of Goals

Coding Theme	Examples
Breeding	Pregnancy percentage, breeding period, sire selection, replacement heifers, calving dates, birth weights, consistent product
Production	Weaning weights, feed purchase, downsize frame score of cows, culling cows
Records/Management	Financial records, production records, resource management
Maintenance/Facilities	Upkeep of buildings, fences
Quality of Carcass	Genetics, nutrition, general management
Pasture Management	Cost, production, general management
Nutrition	Nutritional value of feed
Marketing Strategies/Methods	Marketing strategies, methods
Longevity	Lifespan of operation
Herd Size	Increase herd size to more profitable level
Profit	Increase amount of profit received from cow/calf operation
Decrease Costs	Production costs, annual costs