



Initial grain marketing knowledge of participants in the Montana MarketManager™ Program
by Brian Keith Dennis

A thesis submitted in partial fulfillment of the requirements for the degree of Master of Science in
Agricultural Education
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Abstract:

The purpose of this study was to gather baseline data concerning the 1999-2000 producer participants', of the Montana MarketManager™ Program, relative to educational motivation, level of education, grain marketing experience, risk attitude and knowledge of and ability to utilize specific grain marketing tools and information.

Data for this study were gathered through a survey administered to participants of the 1999 - 2000 Montana MarketManager™ Program. Seventy-two producer participants indicated they would be willing to participate in a 1 to 3 year research study to evaluate the impact MarketManager™ activities might have on their knowledge of and use of grain marketing concepts and ideas. The response rate for this study was 69.4% of the 72 study participants. Data collected from this study can be placed into two distinct categories; (1) demographic factors and (2) knowledge of and ability to utilize specific grain marketing concepts and ideas.

Data analysis reveal that producers were involved in the Montana MarketManager™ Program to improve their grain marketing knowledge and skills, have a more averse attitude toward risk and have difficulty applying their grain marketing knowledge at the higher levels of the cognitive domain. Partial correlation analysis indicated a very strong correlation between risk attitude and grain marketing experience to individual performance on the survey instrument along with a strong correlation between age and level of education and initial knowledge. If the significance level were set at $\alpha = .1$, binary logistical regression analysis would have shown a significant relationship between an individual's age and their response when asked to identify the correct wheat planting alternative given a specific market situation. Binary logistical regression would have revealed a significant relationship, at $\alpha = .1$, between an individual's age and level of education and whether they chose the correct marketing tool for a specific wheat market situation.

The researcher's recommendations include focusing educational efforts on application based teaching methods and reevaluating study participants to determine if those methods have an impact on individual knowledge and use of the grain marketing concepts and ideas contained in this study.

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This thesis has been read by each member of the thesis committee and has been found to be satisfactory regarding content, English usage, format, citations, bibliographic style and consistency and is ready for submission to the College of Graduate Studies.

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TABLE OF CONTENTS

1. THE PROBLEM	1
Introduction	1
Statement of Purpose	2
Need for Study	2
Objectives	4
Definition of Terms	4
Assumptions	6
Limitations	7
2. REVIEW OF LITERATURE.....	8
Adult Learner Motivation.....	8
Affect of Other Demographic Factors.....	13
Program Assessment	18
3. METHODOLOGY	21
Instrument.....	21
Sample Population.....	24
Data Collection.....	25
Data Analysis	26
4. RESULTS OF THE STUDY	29
Demographic Data.....	29
Survey Test Results	37
Statistical Analysis	45
5. CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS	49
Conclusions	49
Implications	50
Recommendations for the Montana Grain Growers Association.....	51
Recommendations for further study	51
BIBLIOGRAPHY	53

TABLE OF CONTENTS (CONTINUED)

APPENDICES.....	56
APPENDIX A INITIAL COVER LETTER.....	57
APPENDIX B FOLLOW-UP COVER LETTER.....	59
APPENDIX C REMINDER POSTCARD.....	61
APPENDIX D SURVEY INSTRUMENT.....	63
APPENDIX E PARTICIPATION SURVEY INSTRUMENT.....	68
APPENDIX F PARTICIPATION SURVEY RESULTS.....	71

LIST OF TABLES

Table	Page
1. Survey questions and their intended purpose	22
2. Return rate of the survey instrument	25
3. Reasons for becoming involved with the Montana MarketManager™ Program	30
4. Individual response combinations concerning participant motivation for becoming involved in the Montana MarketManager™ Program	31
5. Formal education of survey respondents	32
6. Sources of information or education used by producer's to gain grain marketing knowledge and skills	33
7. Type of learning experiences utilized by study participants	34
8. Years of grain marketing experience	34
9. Comparison of age and years of grain marketing experience	35
10. Respondents attitude toward risk under three specific situations	37
11. Individual's overall attitude toward risk using the survey instrument for this study	37
12. Number of correct answers for the test portion of the survey instrument	38
13. Number of correct answers on the local grain basis section of the survey instrument	39
14. Participant responses to selected local grain basis questions categorized by Bloom's Taxonomy	40
15. Number of correct answers on the grain market function section of the survey instrument	41
16. Participant responses to selected grain market function questions categorized by Bloom's Taxonomy	42

17. Number of correct answers on the grain marketing tool section of the survey instrument.....	43
18. Participant responses to selected grain marketing tool questions categorized by Bloom's Taxonomy.....	44
19. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their overall performance on the test portion of survey instrument.....	45
20. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the local basis section of the survey instrument.....	46
21. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the grain market function section of the survey instrument.....	47
22. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the grain marketing tool section of the survey instrument.....	47
23. Binary logistical regression of the relationship between an individual's age, level of education, grain marketing experience and risk attitude and choosing the correct answer for question fifteen.....	48
24. Binary logistical regression of the relationship between an individual's age, level of education, grain marketing experience and risk attitude and choosing the correct answer for question twenty-one.....	48

ABSTRACT

The purpose of this study was to gather baseline data concerning the 1999-2000 producer participants', of the Montana MarketManager™ Program, relative to educational motivation, level of education, grain marketing experience, risk attitude and knowledge of and ability to utilize specific grain marketing tools and information.

Data for this study were gathered through a survey administered to participants of the 1999 – 2000 Montana MarketManager™ Program. Seventy-two producer participants indicated they would be willing to participate in a 1 to 3 year research study to evaluate the impact MarketManager™ activities might have on their knowledge of and use of grain marketing concepts and ideas. The response rate for this study was 69.4% of the 72 study participants. Data collected from this study can be placed into two distinct categories; (1) demographic factors and (2) knowledge of and ability to utilize specific grain marketing concepts and ideas.

Data analysis reveal that producers were involved in the Montana MarketManager™ Program to improve their grain marketing knowledge and skills, have a more averse attitude toward risk and have difficulty applying their grain marketing knowledge at the higher levels of the cognitive domain. Partial correlation analysis indicated a very strong correlation between risk attitude and grain marketing experience to individual performance on the survey instrument along with a strong correlation between age and level of education and initial knowledge. If the significance level were set at $\alpha = .1$, binary logistical regression analysis would have shown a significant relationship between an individual's age and their response when asked to identify the correct wheat planting alternative given a specific market situation. Binary logistical regression would have revealed a significant relationship, at $\alpha = .1$, between an individual's age and level of education and whether they chose the correct marketing tool for a specific wheat market situation.

The researcher's recommendations include focusing educational efforts on application based teaching methods and reevaluating study participants to determine if those methods have an impact on individual knowledge and use of the grain marketing concepts and ideas contained in this study.

CHAPTER 1

THE PROBLEM

Introduction

On October 6, 1998, the Vision 2005 Task Force created by Montana Governor Marc Racicot presented its final report, which contained a goal for doubling the value of Montana agriculture by the year 2005. One of the educational objectives contained in the Professional Producer Initiatives portion of the report was, "to improve producer marketing skills so agricultural producers in Montana market in the upper 1/2 of the commodity market" (Montana Department of Agriculture, 1998).

As part of the Vision 2005 effort the Montana Grain Growers Association (MGGA) created a commodity marketing education and information program entitled, the Montana MarketManager™ Program, to assist Montana's small grain producers with enhancing their grain marketing skills. The goal of The Montana MarketManager™ is "to provide Montana grain producers with the tools and information necessary to develop and implement marketing plans that will maximize profits from wheat and barley markets" (Montana Grain Growers Association, 1998, p. 3).

According to Dr. H. M. Bahn, Director of Higher Education Programs for the Cooperative State Research, Education, & Extension Service, the Montana Grain Growers Association has taken a leadership role with the creation of the Montana MarketManager™ Program. Bahn stated that, "The Montana MarketManager™ Program is unique because, it integrates a web-site, educational workshop series, and marketing clubs, into one program under the leadership of the growers association that was designed to enhance producers' individual grain marketing skills" (Personal Communication, August 25, 1999).

For the Montana Grain Growers Association to determine if producer participants' gain from their involvement in the Montana MarketManager™ Program, it is necessary to establish the individual producer participant's grain marketing knowledge and skills prior to participation in the program.

Statement of Purpose

The purpose of this research was to gather baseline data concerning educational motivation, level of education, grain marketing experience, attitude toward risk and knowledge of and ability to utilize specific grain marketing tools and information for 1999-2000 producer participants' of the Montana MarketManager™ Program.

Need for Study

Effective evaluation of The Montana MarketManager™ is an important part of the program according to Richard Owen, Vice President of Program Development for the

Montana Grain Growers Association. "Evaluation of the Montana MarketManager™ Program needs to show the progress that producers make as a result of our educational programming and whether they are able to apply what they have learned in a real world situation" (Personal Communication, September 2, 1999).

Bahn supports the idea that adult agricultural education programs like the MarketManager™ Program need to be more aggressive with program evaluation.

"We must do a better job of teaching producers to a level that they will be able to apply skills learned to real life situations. Therefore we cannot continue to evaluate producer's perception of whether they learned what was presented to them, we must evaluate whether the producers are able to successfully apply what they have been taught. In order to facilitate an evaluation of this type it is important to determine what producers understand prior to educational activities" (Personal Communication, August 25, 1999).

In addition to being a better measurement of a program's strengths and weaknesses, more aggressive evaluations have become an integral part of current grants. Radhakrishna reported in his article *Program evaluation and accountability needs of Extension Professionals* that "funders, policy makers, and decision makers now want data relating to program results, impact, and social and economic consequences" (1998, p. 76).

In order to facilitate an impact assessment that would measure the Montana MarketManager™ Program to the depth needed, it was necessary to establish a baseline of knowledge prior to participation in educational activities. Draves supported the need for a baseline or pre-assessment data when he stated that, "assessing entering behavior is necessary to determine what the person has learned during the course. Testing at the end helps but certainly does not measure course achievement if entering behavior has not been measured" (1984, p. 35).

The baseline assessment for the Montana MarketManager™ Program consists of producer participants' initial knowledge of and their ability to apply grain marketing concepts and ideas to their spring and winter wheat production and to specific demographic factors, which may affect performance. To accomplish this baseline assessment, the researcher evaluated individual participant's knowledge of and their ability to utilize grain marketing concepts and ideas using Bloom's Taxonomy of cognitive learning.

Objectives

The objectives of this study were to:

- (1) determine producers' educational motivation and specified demographic factors including; age, level of education, grain marketing experience and risk attitude, which may influence performance in the Montana MarketManager™ Program; and
- (2) determine producer participants' initial knowledge of and ability to utilize selected grain marketing concepts and ideas.

Definition of Terms

The following definitions are for terms contained in this study:

Local Basis -- is the cash price of grain at a specific point minus the price of an appropriate futures contract (Montana Grain Growers Association, 1999).

Basis contract -- a contract that establishes a basis received at some future point but leaves the cash price to be decided at some future time (Montana Grain Growers Association, 1999).

Cash sales -- sale of a commodity with price determined at the time of delivery.

Educational motivation -- individual producer participant's reason(s) for being involved with educational activities.

Forward contract -- a cash grain contract that designates the price received and date of delivery for some future time (Montana Grain Growers Association, 1999).

Futures contract -- an agreement to purchase or sell a commodity for delivery in the future: (1) at a price that is determined at initiation of the contract; (2) which obligates each party to the contract to fulfill the contract at the specified price; (3) which is used to assume or shift price risk; and (4) which may be satisfied by delivery or offset (Montana Grain Growers Association, 1999).

Hedging with futures -- utilizing a futures contract to establish a future price, which limits exposure to market price change.

Hedging with options -- utilizing an option contract, which provides either a price floor or price ceiling and limits exposure to change in the market price.

Marketing Club -- a group that consists of local producers, which meet regularly and voluntarily to enhance their marketing knowledge and skill level.

Minimum price contract -- a cash grain contract that establishes a price floor, but provides the opportunity to take advantage of a market price increase (Montana Grain Growers Association, 1999).

MGGA -- an acronym for the Montana Grain Growers Association, whose membership consists primarily of Montana small grain producers.

Montana MarketManager™ Program—a commodity marketing education and information program created by the Montana Grain Growers Association to enhance the grain marketing knowledge and skills of its membership.

Option -- a contract that gives the buyer the right, but not the obligation to, (1) buy a commodity or futures contract, or (2) sell a commodity or futures contract (Montana Grain Growers Association, 1999).

Price risk -- risk associated with possible changes in market price, usually futures price (Montana Grain Growers Association, 1999).

Risk -- Risk is a situation in which an individual knows the alternatives to a decision and probability or likely hood of those events occurring

Assumptions

The assumptions guiding this study were:

- 1) Grain producers are aware of the need for grain marketing education and the value of that education for understanding the increasing complexity of grain marketing;
- 2) Grain producers have some knowledge of grain marketing fundamentals and tools, however, they do not have a complete understanding of grain marketing information, tools, and implementation.

Limitations

The population for this study was limited to:

- 1) Participants of a Montana Grain Growers Association's Market Fundamentals and Outlook Workshop, on June 28th & 29th, 1999, who stated that they would be willing to participate in a one to three year research study to evaluate their marketing knowledge and skills.

The results and conclusions of this study extend to:

- 1) Seventy-two grain producers who agreed to participate in a one to three year research study to evaluate their marketing knowledge and skills.

CHAPTER 2

REVIEW OF LITERATURE & RESEARCH

This literature review contains support for the three major components of this study; (1) what motivates adults to learn, (2) what demographic factors affect their participation and performance and (3) how do you effectively evaluate adult education programs.

Adult Learner Motivation

Why is it important to understand adult learner motivation if the researcher is attempting to establish a baseline of knowledge for the Montana MarketManager™ Program? Darkenwald and Merriam reported that "research...has largely ignored the topic of participation...[and] has seldom considered it important. Yet participation is central to theory and practice in adult education because the great majority of adults are voluntary learners" (1982, p. 25).

This appears to be a peculiar practice since "we know motivation is important, because we know that if we match two people of identical ability and give them the identical opportunity and condition to achieve, the motivated person will surpass the

unmotivated person in performance and outcome" (Wlodkowski, 1999, p. 4). It would also appear that, "when motivation to learn is very low, we can generally assume that potential learning achievement will to some extent be diminished" (Wlodkowski, 1999, p. 4).

If motivation could impact the success of a learner, then it would be logical to assume that participant motivation could have an impact on the overall success of a program. Therefore, it is necessary to include assessment of adult learner motivation into a thorough program evaluation.

In a widely reported study, Johnstone and Rivera cited eight different motivational factors or reasons for seeking out educational opportunities. Their study was conducted on "4603 subjects who were given a checklist based on a number of popular interpretations of why adults enroll" (Johnstone and Rivera, 1965, p. 145). The top eight responses or reasons individuals chose to participate in adult learning are as follows:

1. "[To] become a better informed person (37%);
2. [To] prepare for a new job or occupation (36%);
3. [To] improve on the job held at the time (32%);
4. [To] spend my spare time more enjoyably (20%);
5. [To] meet new and interesting people (15%);
6. In carrying out everyday tasks and duties (13%);
7. [To] get away from the daily routine (10%); and
8. [To get] away from home (10%)" (1965, p. 143).

When studying these responses Johnstone and Rivera concluded that, "vocational goals most frequently direct adults into continuing education" (1965, p. 144). After looking at Johnstone and Rivera's results, indicated a trend toward being able to classify

learner motivation into job-related reasons or professional development and non-job-related reasons or social interaction.

This assumption is supported by a number of surveys conducted since the original work of Johnstone and Rivera. Eight surveys of participation conducted by The National Center for Education Statistics have shown that job-oriented reasons are the primary motivation of adult learners (Merriam and Cafferella, 1999). In addition, Valentine reported that in a recent survey conducted by the United Nations Educational Scientific and Cultural Organization (UNESCO) reported that, "fully 90.6% [of the respondents] cited career or job-related reasons for participation, and 9.4% cited 'personal interest'" (1997, p. 34). With this support the researcher will determine whether small grain producers were motivated to participate in the Montana MarketManager™ Program for the purpose of professional development or social interaction.

What job-related issues would motivate small grain producers to seek education concerning efficient use of grain marketing skills? Amosson, et.al. reported that the increase in educational needs may stem from the fact that, "farmers use of marketing/risk management techniques is very limited." They went on to report that, "in the past, government support programs helped mask the importance of grain marketing skills. However, price volatility has increased substantially since 1972, and price and income protection provided by the farm programs has been reduced steadily since the mid 1980's. Producers have not adapted their marketing behavior to deal with these changes" (Amosson et.al., 1999, p. 19).

The situation described by Amosson, et. al. appears to create a void of knowledge or an educational need concerning grain marketing skills and this need can be explained by a pair of assumptions made by Malcolm Knowles (1989, pp. 83-84):

- (1) "Adults have a self-concept of being responsible for their own life...they develop a deep psychological need to be seen and treated by others as being capable of self direction," and
- (2) "Adults become ready to learn those things they need to know...to cope effectively with their real-life situations".

These basic assumptions appear to be central to understanding producer participants' motivation to seek out education or information concerning the effective use of grain marketing concepts and ideas and are further supported by both Courtney and Wlodkowski. Courtney reported that adults may seek education "to acquire basic information and apply it to...daily life, [and] the desire to advance professionally or the need to increase efficiency at work" (1992, p. 3). Wlodkowski supported Knowles' assumptions when he stated "the more strongly a person [producer] feels the need [for education], the greater the chances the person will feel an accompanying pressure to attain the related goal. This...pressure can translate into a desire...to achieve a particular goal" (1999, p. 48).

The statements by Knowles, Courtney and Wlodkowski support the idea that producers feel a need, based on survival, to learn more about and become better at utilizing grain marketing tools. Therefore, low agricultural commodity prices appear to be an important reason for producers to become involved in the Montana MarketManager™ Program.

Though personal or professional survival appears to be the obvious reason for an individual producer to participate in the Montana MarketManager™ Program, it would be remiss to conclude that it is the only reason for their participation. There is a second category of motivational factors affecting educational motivation, social reasons.

Included in Johnstone and Rivera's survey were four social reasons to participate in an educational program. These four reasons were to spend spare time more enjoyably, meet new and interesting people, escape the daily routine, and get away from home. Though they were not the primary reasons for individuals to participate, they were a contributing factor for some to participate in learning activities.

Merriam and Cafferela (1999, pp. 54-55) combined Johnstone and Rivera's four social motivation responses into three areas, which are defined as follows:

- (1) Social relationships - participation in order to make new friends or meet members of the opposite sex;
- (2) Escape/stimulation - learners who are involved as a way of alleviating boredom or escaping home or work routines; and
- (3) Cognitive interest - participants engaged for the sake of learning itself".

Social reasons are a motivating factor for some individuals to participate in educational activities, however, the literature does not indicate they will have a significant impact on the results of this study. This assumption is supported by the UNESCO study, referenced in page 10, which stated that only 9.4% of adult education participants were involved for non-job or career related reasons. However, because some producers may be involved for social reasons, it seems prudent to include those reasons into this study.

In summary, the researcher has provided support for two assumptions that will be important in assessing the impact of the Montana MarketManager™ Program; (1) learner motivation has an impact on participation and performance, and (2) learners are primarily motivated by job-related or need for professional development.

Affect of Other Demographic Factors

Although learner motivation may have a measurable impact on performance, it would be foolish to assume that other demographic factors are not important. One of the researcher's assumptions was that producer participants possess some level of knowledge concerning grain marketing. In fact, "most [farmers] are skilled workers who have learned to get along remarkably well under the conditions they have to contend with" (Lionberger and Gwin, 1991, p. 8). Therefore, the researcher felt it was necessary to identify relevant demographic factors that may affect producer participants' knowledge about grain marketing and influence their performance in the Montana MarketManager™ Program. This study will examine several additional factors including; (1) grain marketing experience, (2) level of education and training and (3) attitude toward risk, which may have an impact on an individual's success in the Montana MarketManager™ Program.

Merriam and Cafferella noted that, "experiences of adults have always been viewed as a critical component of learning" (1999, p. 246). This statement summarizes comments made by Lindeman and Knowles concerning the importance of experience and viewed it as an educational resource that should be used by adult educators. An

individual could assume that if experience is useful to learning, then it could impact initial knowledge and thus, what individual's gain from participation in educational activities. Lindeman supported this assumption by stating, "experience becomes the adult learner's living textbook...already there [to be utilized]" (1961, p. 7). Knowles echoed those sentiments with his comment that adults "accumulate an increasing reservoir of experience that becomes an increasingly rich resource for learning" (1980, p. 44). Thus, grain marketing experience is one demographic factor the researcher will examine.

A second factor, which could influence the baseline assessment and perhaps future performance, is an individual's level of education or training. Courtney reported that, "schooling [appears] to be a dominant demographic influence" on those seeking adult education, and went on to say that, "it appears the majority of those who participate in...adult education have already availed themselves of college level experience" (1992, p. 36). This supports the researcher's hypothesis that producer participants' have schooling or training, which would provide them with some knowledge of grain marketing. If the schooling or training could have an impact on what producer participants currently know about grain marketing, then it would seem prudent to identify the level of schooling or training producer's have to evaluate whether it has an impact on performance.

The final demographic factor in this study was an individual's attitude toward risk, which allowed the researcher to determine if that attitude affects an individual's performance in the Montana MarketManager™ Program. An objective of the Montana MarketManager™ Program was to improve producer's management of price risk, so it

appears necessary, for the purposes of this study, to develop a working definition of both risk and price risk management.

Bodie and Merton describe risk as uncertainty that affects an individual's welfare, and is often associated with adversity and loss (1998). Harwood, et. al. expanded upon Bodie and Merton's description with the following definition. "Risk is uncertainty that 'matters', and may involve the probability of losing money, possible harm to human health, repercussions that affect resources (irrigation, credit), and other types of events that affect a person's welfare" (1999, p. 2). For the purposes of this study the researcher will use a combination of these two descriptions and an early risk definition provided by Frank H. Knight (1921). Risk is a situation in which an individual knows the alternatives to a decision and probability or likely hood of those events occurring. With this definition of risk in mind, risk management would include those activities or tools an individual or producer would use to decrease their exposure to the negative outcomes associated with risk.

Patrick supported this hypothesis by stating that, "risk management involves anticipating possible difficulties and planning to reduce their consequences" (Patrick, 1992, p. 1). Harwood and others echoed this opinion with their description of risk management. "Risk management involves finding the preferred combination of activities with uncertain outcomes and varying levels of expected return. One might say that risk management involves choosing among alternatives for reducing the effects of risk on a farm, and in so doing, affecting the farm's welfare position" (Harwood, et.al., 1999, p. 2).

After providing definitions for risk and risk management it is important to provide an understanding of why risk, or an individual's attitude toward risk, is important to this

study. Patrick went on to explain that, "knowledge of your risk attitudes can be helpful in understanding your feelings in certain situations and why you make particular decisions" (1992, p. 17). This implies that risk attitude may have a role in influencing performance in programs such as the Montana MarketManager™ Program. Harwood, et. al. supported risk attitude's importance when they stated, "preference toward risk and their risk-return tradeoffs have a major effect on [a producer's] decision-making" (Harwood, et. al., 1999, p. 3). These statements imply that an individual's attitude toward risk has an impact on their decision-making and, therefore, the researcher felt it was prudent to include risk attitude in this study.

To evaluate an individual's risk attitude it is necessary to define specific attitudes toward risk an individual may hold. According to Hirschey and Pappas, there are "three possible attitudes toward risk... aversion to risk, indifference to risk, and preference for risk" (1993, p. 93). Patrick outlined four risk attitudes, which closely resemble Hirschey and Pappas' three risk attitudes. The four attitudes or personalities Patrick discussed were: "avoiders, daredevils, adventurers and calculators" (Patrick, 1992, p. 3). The following list combines the two sets of risk terms and gives a brief description of their characteristics.

Risk Averse: Avoiders – individuals who avoid risk, settle for safe investments that have lower return on investment

Risk Neutral: Calculators – individuals who accept a diminished probability of return in exchange for a higher return on investment

Risk Preference: Adventurer – individuals who will engage in riskier activities that may have a low probability of return but will have a significant return on investment

“Daredevil: is the opposite of the Avoiders and take many unnecessary chances...[and] typically do not get involved in farming” (Patrick, 1992, p. 4)

For the purposes of this study the researcher elected to use Hirschey and Pappas' terms; risk averse, risk neutral and preference for risk to describe an individual's attitude toward risk. The researcher chose to disregard Patrick's 'Daredevil' attitude since he indicated that daredevils tend not to be involved in agriculture.

The next step to determine an individual's attitude toward risk is developing an appropriate assessment method. However, "risk is a complex concept, and some controversy surrounds attempts to define and measure it" (Hirschey & Pappas, 1993, p. 85). For the purposes of this study the researcher chose to utilize a series of questions designed to evaluate an individual's attitude toward risk in a given situation. The possible choices for the specific situations represent one of the risk attitudes listed above, an approach, which was supported by Patrick as well as Hirschey and Pappas. Hirschey and Pappas stated that "common risk measures that are satisfactory for most purposes are based on the observation that tight probability distribution imply low risk because of the correspondingly small chance that actual outcomes differ from expected values" (1993, p. 85). To put Hirschey and Pappas' statement in laymen's terms, option A has less risk than option B, which has less risk than option C. Patrick provides support for this idea and a model for this type of risk analysis in Appendix A of his 1992 publication entitled, *Managing Risk in Agriculture*. He developed a set of 11 questions designed to "help measure risk attitudes" (Patrick, 1992, p. 17) that the researcher used as a model for assessing an individual's risk attitude in this study.

Program Assessment

The second objective of this study was to establish producer participant's initial knowledge of and ability to correctly utilize specific commodity marketing tools and concepts. One could see the importance of understanding subject matter and the ability to apply that knowledge from everyday examples. For example, what is the value of a 16 year old who knows all about the rules involved in driving, but fails to apply that information in a safe manner on the street? Therefore, it would appear that a thorough evaluation of a program would need to examine not only an individual's knowledge of a subject, but also their ability to utilize that information in an operational setting.

The National Council of Teachers of Mathematics embraced the idea that learners must apply what they have learned when they became concerned about mathematical literacy in the United States. The council feared that Americans were not utilizing math effectively so "they developed a commission to develop standards that would define mathematical literacy" (Giordano, 1995, p. 13). The five standards they developed were that a person should learn to:

- (1) Value mathematics;
- (2) Reason mathematically;
- (3) Communicate mathematically;
- (4) Become confident of their mathematical abilities; and
- (5) Become mathematical problem solvers.

Although these standards are very specific to mathematics, they served to introduce the idea of cognitive domains and their use in measuring what an individual understands or has learned.

In 1956, Benjamin Bloom identified six major categories in a learner's cognitive domain. Those six categories, are defined as:

- (1) Knowledge - recognition and recall of facts and specifics;
- (2) Comprehension - interpret, translate, summarize, or paraphrase information;
- (3) Application - use information in a situation different from learning context;
- (4) Analysis - separate whole into parts, until relationship is clear;
- (5) Synthesis - combines elements to form new entity from original; and
- (6) Evaluation - decision-making judging or selecting from criteria or rationale (1956).

Put simply, levels of cognition are the steps that learners go through during an educational experience that culminates with the learner being able to utilize a new skill as a problem solver.

In the modern agricultural environment there is a need for producers to develop a "higher level of cognitive skills...to enable [them] to effectively respond to changing incentives, increased scrutiny and increased uncertainty" (Bahn, 1999, p. 7). However, many current program evaluations fail to consider the need for higher cognitive skills or evaluate for them using tools such as Bloom's Taxonomy, a hypothesis supported by both Radhakrishna and Reif. Radhakrishna reported that historically "evaluation of programs tended to be informal judgement rather than formal assessment. Systematic measurement of outcomes was elusive and programmers used testimonials, case studies, and happiness indexes, to show the worth of the program[s]" (1998, p. 75). Reif addressed the lack of consideration in evaluations given to cognitive thinking when he stated that; "frequently...formal testing of adult learners never go beyond the first three level of this [Bloom's] learning taxonomy" (1995, p. 13). Therefore, it appears that evaluators of adult education programs, such as the Montana MarketManager™, should consider the six levels of Bloom's cognitive domain and evaluate not only an individual's knowledge, but also an individual's ability to apply that knowledge in a real world situation.

Regarding the need or importance of a baseline assessment, Draves expanded on his comment that, "assessing entering behavior is necessary to determine what the person has learned during the course," and that, "assessing entering behavior is possibly the least recognized and performed step in conducting a course [evaluation] in which a change in behavior is measured" (Draves, 1984, p. 35). The writer's theories provide a basis for determining initial knowledge and ability prior to education and is supported by Gronlund and Linn, who stated that, "pretests for determining the extent to which pupils have already achieved the objectives of the planned instruction...[should] be given at the beginning to measure entry performance" (1990, p. 111).

To summarize, a thorough and effective program evaluation; contains a pre-assessment and evaluates an individual's knowledge of and ability to utilize information provided during an educational program.

CHAPTER 3

METHODOLOGY

This research study was designed and conducted to establish a baseline of knowledge concerning what producers' know about specific grain marketing concepts, which include; local grain basis, grain market function and grain marketing tools along with their reasons' for becoming involved with the Montana MarketManager™ Program. The data for this study were collected using a survey instrument, which was mailed to the 72 study participants.

Instrument

The survey instrument consisted of 24 questions intended to evaluate producer participants' educational motivation, grain marketing experience, past education or training, attitude toward risk and knowledge of and ability to utilize specific grain marketing concepts and ideas. The following table depicts the type and number of questions in the survey instrument:

Table 1. Survey questions and their intended purpose.

Purpose of question	Quantity
1. Evaluate participant motivation	1
2. Determine grain marketing experience	1
3. Determine education or training level*	2
4. Determine attitude toward risk	3
5. Establish initial knowledge and use of local basis	6
6. Establish initial knowledge and use of market function	6
7. Establish initial knowledge and use of grain marketing tools	6

* Level of formal education came from June 28th and 29th survey information

Through the review of literature, the researcher identified demographic factors, which may impact producer participant's knowledge and use of specific grain marketing concepts and ideas. Those demographic factors include; educational motivation, age, level of education, grain marketing experience and attitude toward risk. The Montana MarketManager™ advisory committee, which consists of small grain producers, members of the grain trade, and Extension personnel, identified those grain marketing concepts and ideas they felt were important for Montana grain producers to understand. Those concepts include; grain market fundamentals or function, local grain basis, grain marketing tools and their use, and cost of grain production and became the basis for the Winter Workshop Series curriculum.

The researcher and his graduate committee identified and evaluated three of the four concepts and ideas, which were to be presented during the Winter Workshop Series to establish a baseline of knowledge for the Montana MarketManager™ Program. Those three concepts were (1) market fundamentals, (2) local basis, and (3) grain marketing tools and their use. The researcher developed six questions, one for each of Bloom's

cognitive domains, to evaluate an individual's knowledge of the three specific grain marketing concepts selected for this study.

The researcher developed the survey questions with assistance from Dr. John Marsh and Dr. David Buschena who teach commodity marketing for the Agricultural Economics & Economics Department at Montana State University - Bozeman. The survey was reviewed for level of difficulty and ability to evaluate a producer's knowledge and understanding of grain marketing concepts and ideas by Bill Jimmerson, an agricultural educator at Conrad High School, David Phillips, Fergus County Extension Agent, and Jim Riley, an adult farm business management instructor at the University of Missouri - Columbia.

Louise Gartner, a commodity broker with Spectrum Commodities in Great Falls, Montana reviewed the survey for accuracy of the test questions and to verify the correct answers. The researcher utilized the Flesch-Kincaid Grade Level test, contained in the Microsoft Word® software, to determine the reading level of the survey. The results indicated that the survey read at the 9.3 grade level, which the researcher and his committee chair deemed to be acceptable.

The researcher's graduate committee approved the survey instrument, which was pilot tested on 25 students enrolled in the Agricultural Economics (AGEC) 341 junior-level Farm & Ranch Management course. The pilot test was used to evaluate the time needed to complete the survey instrument and to identify questions or areas of the survey that were unclear or if the pre-test's level of difficulty was acceptable. Results from the pilot test were entered into a computer system using Remark Office OMR 4.0®, which contained the Kuder-Richardson formula 20 reliability statistic. The Kuder-Richardson

statistic indicated that the pilot test instrument had a .69 reliability. Upon completion of the pilot test, the researcher's graduate committee approved the survey instrument and it was sent to the study sample.

Sample Population

The population, from which the sample for this study was taken, consisted of participants of two Market Fundamentals and Outlook Workshops sponsored by the Montana Grain Growers Association. These workshops were attended by 153 people and were conducted at the Heritage Inn in Great Falls on June 28th, 1999 and Montana State University-Northern in Havre on June 29th, 1999. The Havre workshop was presented via the VisionNet System to locations in: Bozeman, Frazer, Malta, Medicine Lake, Pablo, Rapelje, and Winifred, Montana.

The 153 participants completed a demographic survey, which contained a question that asked if they would be willing to participate in a 1 to 3 year research study to evaluate the impact of the Montana MarketManager™ Program. Eighty-five of the 153 participants indicated they would be willing to participate in a 1 to 3 year research study. The researcher further reduced that number by selecting 72 of the participants who indicated that they derived more than 50% of their family's income from a farming operation and would be willing to participate in the study.

Results from this purposeful sample can only be related to the Montana small grain producers who agreed to participate in the study. However, the results will provide a baseline of knowledge to allow for better assessment of the Montana MarketManager™ Program and the impact it had on those 72 study participants.

Data Collection

The survey instrument (Appendix D), along with a cover letter (Appendix A) and self-addressed stamped envelope were mailed to the 72 study participants on October 15, 1999. The cover letter explained the purpose of the survey, instructions, and was signed by Richard Owen, Vice President of Program Development for MGGA, and the researcher. A reminder postcard (Appendix C) was mailed November 1, 1999, to all study participants encouraging them to return their surveys prior to November 9, 1999. On November 15, 1999, a second copy of the survey instrument was mailed to all non-responders accompanied by a letter (Appendix B) from Richard Owen and Randy Johnson, Executive Vice President of the MGGA. The letter reminded non-responders of their agreement to participate in a 1 to 3 year research study to evaluate the Montana MarketManager™ Program. The last date survey returns were accepted was December 2, 1999. The data in Table 2 indicate an overall return rate of 69.4% for this study with 30% or fifteen of the surveys returned coming after the second mailing of the survey.

Table 2: Return rate of the survey instrument. (N=72)

Type of return	Number Sent	Number Returned	Percent Returned
Returned after initial mailing	72	35	48.6
Returned after second mailing	37	15	40.5
Total		50	69.4

The researcher calculated the Kuder-Richardson formula 20 reliability statistic for the survey returns. Analysis indicated that the reliability of the survey responses was .764.

Surveys received after November 9, 1999, were classified as late responders and examined to determine if performance was influenced by the November 9 workshop. The researcher performed a Mann-Whitney mean analysis on the 31 early responders and 19 late responders for this study. Analysis showed no significant difference between the early and late responders survey performance, therefore, the researcher made no distinction between the two groups and treated them as one.

Data Analysis

Data from the returned surveys were entered into a computer system using the Remark Office OMR 4.0® software. The built-in grading and tally components of the Remark Office OMR 4.0® provided summaries of the survey results, which included individual performance scores on the grain marketing sections, and totals for each of the six demographic questions. Individual responses to the risk questions were assigned values according to the response for each of the three questions. Risk averse responses were given a score of -1, risk neutral responses were given a score of 0 and responses indicating a preference for risk were given a score of 1. The researcher summed those individual scores creating an aggregate score for an individual's overall attitude toward risk. Negative values were considered an averse attitude, zero values were considered indifferent to risk, and positive values indicated a preference toward risk.

These overall values were then converted for the purpose of statistical analysis. Negative values were assigned an overall score of 1 to indicate a risk averse attitude, positive scores were given a overall value of 3 to indicate a preference for risk. Individual's who had a zero value were given an overall score of 2, which indicated they had a neutral attitude toward risk.

Two statistical analyses of the survey data were used to identify relationships between an individual's demographic information and his/her performance on the different grain marketing topics. This analysis was accomplished utilizing the Statistical Package for Social Sciences® (SPSS 9.0) software with relationships considered to be significant at $\alpha = .05$.

The researcher utilized partial correlation analysis to determine the correlation between the independent factors of age, grain marketing experience, education, risk attitude and their performance on the test portion of the survey instrument. Partial correlation analysis examines the impact or correlation between one independent variable and the other independent variables with respect to dependent variables of interest.

Preliminary examination of the test results indicated a noticeable difference between the comprehension level and the application level for the grain market function and grain marketing tool section of the instrument. The researcher utilized a binary logistical regression to determine if there was a significant relationship between an individual's demographic factors and whether he/she chose the appropriate planting decision for a given market situation or whether they chose the appropriate grain marketing tool for a grain market experiencing a rally. Logistical regression analysis of these two questions was intended to determine if one or more of the independent

variables had on an individual choosing the correct answer for question 15 and 21 on the survey instrument.

CHAPTER 4

RESULTS OF THE STUDY

The results from this study have been divided into three sections: (1) demographic data, which identifies educational motivation and specific demographic factors that could influence an individual's performance, (2) survey test results, which identify what producers understand about grain marketing and, (3) statistical analysis which will examine the relationship between the demographic factors and an individual's performance on the survey test questions.

Demographic Data

The data in Table 3 indicate producer responses when asked why they became involved with the Montana MarketManager™ Program. Respondents were asked to indicate their reason(s) for becoming involved in the program. Forty-seven (94%) producers indicated they were involved to improve their use of grain marketing tools, and 44 (88%) producers indicated that they were involved to learn more about grain marketing.

Table 3: Reasons for becoming involved with the Montana MarketManager™ Program.

Reasons for participation	n	Percent*
Professional		
a. To improve my use of grain marketing tools.	47	94%
b. To learn more about grain marketing	44	88%
Social		
c. To become more involved with the Montana Grain Growers Association.	5	10%
d. To meet other producers from around Montana.	4	8%
e. Other	2	4%

* Percent exceeds 100% due to multiple participant responses

The responses in Table 3 can be grouped into two motivational categories: (1) professional or personal development, and (2) social interaction. From the literature review the researcher determined that being involved to learn more about grain marketing or improve the use of grain marketing tools were professional or personal development reasons. Becoming more involved with the MGGA or to meet other producers were considered to be social motivations to participate in the Montana MarketManager™ Program. The two responses in the other category were determined to be social from the explanations, which accompanied the responses.

The information in Table 4 depicts eight different response combinations regarding participant motivation indicated by respondents. The five combinations that received more than one response are listed below. The most common response combination came from 33 (66%) of producers who indicated they were involved to learn more about marketing and to improve their use of grain marketing tools. There were 8

[3+3+2] (16%) respondents who indicated they were involved for social purposes in addition to professional or personal development reasons. It is important to note that 50 (100%) of the survey respondents indicated that they were involved in the Montana MarketManager™ Program to either learn more about marketing or improve their skills.

Table 4: Individual response combinations concerning participant motivation for becoming involved in the Montana MarketManager™ Program.

Response combinations	n	Percent
Learn more about marketing and improve use of tools	33	66%
Improve use of tools only	6	12%
Learn more about marketing only	3	6%
Learn more about marketing, improve use of tools, an involvement in MGGA	3	6%
Other combinations	3	6%
Learn more about marketing, improve use of tools, and meet other producers	2	4%

The information in Table 5 shows the education level of survey respondents. This information was gathered from a survey instrument (Appendix C) administered to participants of the June 28 and 29, 1999, Market Outlook and Fundamentals Workshop. Thirty-four (68%) of the respondents indicated that they had more than a High School education with 23 (46%) indicating they have a Bachelor's Degree. It is worth noting that there are three (6%) producers had advanced degrees, 1 Master's, 1 PhD, and a Juris Doctorate.

Table 5. Formal education of survey respondents.

Type of education	n	Percent
Bachelor's Degree	23	46%
High School	15	30%
Vocational or Technical School	5	10%
Two-year Associate's Degree	3	6%
Other*	2	4%
Master's Degree	1	2%
Did not answer	1	2%

* 1 PhD, 1 Juris Doctorate

The information in Table 6 shows the sources of information or education respondents used to acquire their current level of commodity marketing knowledge and skill. More than 75% of respondents indicated that they have utilized; (1) material from local elevator or broker (42, 84%), (2) personal experience (40, 80%), and (3) sponsored workshops (38, 76%) to gain current grain marketing knowledge. Eleven (22%) respondents revealed that they used the Internet to gain information with nine (18%) indicating they learned about grain marketing in college. There were two (4%) producers who said they were not familiar with grain marketing tools.

Table 6. Sources of information or education used by producers' to gain grain marketing knowledge and skills.

Sources of current grain marketing knowledge	N	Percent*
From information or material provided by local elevator or broker	42	84%
Personal experience (i.e. trial and error in the marketplace)	40	80%
Sponsored workshops	38	76%
From material found on the internet	11	22%
College course work	9	18%
I am not familiar with grain marketing tools	2	4%
Previous job experience (i.e. broker, grain buyer)	1	2%

* Percent exceeds 100% due to multiple participant responses

In Table 7, the researcher grouped the data from Table 6 into structured sources of education or training and independent learning experiences. Structured education or training sources contained in Table 6 were sponsored workshops, college course work and previous job experience. The independent learning experiences were personal experience, information obtained from an elevator or broker and material found on the Internet. There were a total of 224 with 129 (57.59%) indicating participation in structured learning experiences and 93 (41.52%) indicating participation in independent learning activities.

Table 7. Type of learning experiences utilized by study participants.

Type of learning experience	n	Percent
Structured learning experience	129	57.59%
Independent learning experience	93	41.52%
Not familiar with grain marketing tools	2	0.89%

The information found in Table 8 indicates the years of experience, which study participants have with grain marketing. There were 37 [5+11+21] (74%) of the producers who stated that they have more than 10 years of grain marketing experience while 21 (42%) of the respondents stated they had more than 20 years of marketing experience. The remaining 13 (26%) of the respondents stated they had less than 10 years of grain marketing experience.

Table 8. Years of grain marketing experience.

Years	n	Percent
0 - 5 years	5	10%
5 -10 years	8	16%
10-15 years	5	10%
15 -20 years	11	22%
20 or more years	21	42%
Not involved with marketing decisions	0	-

Table 9 depicts participant's age compared to their years of grain marketing experience. This table indicates that participants of this study were older, with 40 [29+9+2] (80%) of the respondents indicating they were over the age of 40. Of those 40

producers, 33 [3+8+12+1+7+2] (66%) stated that they had 10 or more years of marketing experience with 21 [12+7+2] (42%) of the total respondents indicating they had 20 or more years of experience with grain marketing. There were nine [1+8] (18%) of the respondents who indicated they were between 20 and 39 years of age with five [1+1+3] (10%) indicating they had 5 to 15 years of grain marketing experience. There was one respondent who indicated he/she had 15 to 20 years of marketing experience but did not provide age data on the June 28 and 29, 1999 survey.

Table 9. Comparison of age and years of grain marketing experience. (N = 50)

Age in years	Years of experience					Total
	0 - 5	5 - 10	10 - 15	15 - 20	20 +	
20 - 29	-	1 (2%)	-	-	-	1 (2%)
30 - 39	3 (6%)	1 (2%)	3 (6%)	1 (2%)	-	8 (16%)
40 - 49	-	6 (12%)	3 (6%)	8 (16%)	12 (24%)	29 (58%)
50 - 59	1 (2%)	-	-	1 (2%)	7 (14%)	9 (18%)
60 +	-	-	-	-	2 (4%)	2 (4%)
Did not answer	-	-	-	1 (2%)	-	1 (2%)
Total	4 (8%)	8 (16%)	6 (12%)	11 (22%)	21 (42%)	

The information found in Table 10 represents the participants' attitude toward risk as measured by this study. Study participants were asked to answer three questions designed to evaluate their risk attitudes. Potential responses for these questions represented the three attitudes toward risk provided in the literature review; preference toward risk, indifferent attitude toward risk (neutral), or an aversion to risk.

Examining responses to question four, the researcher found thirty (60%) producers who chose the risk averse alternative indicating they would contract over half of their grain production for 5 cents over breakeven. Six (12%) respondents indicated they would wait to see if market indicators were correct and the price of wheat would increase instead of locking in a price.

Thirty-eight (76%) producers who answered question five chose the risk averse option and indicated they would insure over half their acreage against the chance of having significant hail damage one out of ten years. Eight (16%) respondents indicated they would not insure any of their grain acreage. The reader will note the small number (4, 8%) of respondents who had a neutral attitude toward risk when associated with hail insurance.

There was a decrease in the number of risk averse responses for question six with 17 (34.7%) producers indicating they would not consider contracting a portion of their production with a new bakery. Thirty (61.2%) respondents indicated they would contract half of their production with the new bakery, which represented a neutral risk attitude for this study. Only two (4.1%) producers responded they would contract their entire wheat production with the new bakery with no guarantee that the bakery would be successful.

Table 10. Respondent's attitude toward risk under three specific situations.

Risk attitude questions*	Prefer n / Percent	Neutral n / Percent	Averse n / Percent
4. Forward contract spring wheat for 5 cents over breakeven or do not establish forward price and see if positive indicators are correct.	6 / 12%	14 / 28%	30 / 60%
5. Should the producer purchase hail insurance based on historical predictions of significant damage once every ten years?	8 / 16%	4 / 8%	38 / 76%
6. Contract production with a new bakery, or enter one-year contract with a local elevator.**	2 / 4.1%	30 / 61.2%	17 / 34.7%

* Complete questions found in Appendix D

** 1 non-responder on question 6

The information in Table 11 depicts overall risk attitude for each study participant. Individual risk attitude scores which were -1 for risk averse, 0 for risk neutral, and 1 for risk preference were converted, for the purposes of statistical analysis, to a score of 1 for risk averse, 2 for risk neutral, and 3 for risk preference. The researcher took these values, from Table 10, and created the Table 11 to depict individual's overall attitude toward risk as measured by this survey instrument. This approach indicates risk aversion with 37 (75.5%) of the respondents falling in the risk averse attitude category.

Table 11. Individual's overall attitude toward risk using the survey instrument for this study. (N = 49)*

Individual	Prefer n / Percent	Indifferent n / Percent	Averse n / Percent
Attitude toward risk	5 / 10.2%	7 / 14.3%	37 / 75.5%

* One respondent did not answer all the risk attitude questions

Survey Test Results

The data found in Table 12 represent the number of correct responses to the eighteen questions contained in the test portion of the survey instrument. Twelve (24%)

producers correctly answered 15 to 18 of the test questions. The majority of producers, 28 (56%), answered between 10 to 14 questions correctly with 10 (20%) of the respondents answering 9 or less of the questions correctly. The average number of correct answers on the test portion of the survey instrument was 12.08 out of 18 or 67.1%.

Table 12. Number of correct answers for the test portion of the survey instrument.*
(N = 50)

Number of correct answers**	n	Percent
18 - 15	12	24%
14 - 10	28	56%
9 - 0	10	20%

* Average score = 12.08 or 67.1%

** Unanswered questions were considered incorrect

The information in Table 13 represents the number of local grain basis questions individual producers correctly answered on the survey instrument. Nine (18%) of the survey respondents answered all of the basis questions correctly with a total of 23 [9+14] (46%) producers correctly answering five or more questions in the local basis section of the survey instrument. There were 45 [9+14+15+7] (90%) producers who correctly answered three or more questions correctly with only 5 (10%) answering less than three questions right. The average number of correct answers for the local grain basis section of the survey instrument was 4.20 out of 6 or 70%

Table 13. Number of correct answers on the local grain basis section of the survey instrument.* (N = 50)

Number of correct answers**	n	Percent
6	9	18%
5	14	28%
4	15	30%
3	7	14%
2	1	2%
1	3	6%
0	1	2%

* Average score = 4.20 or 70%

** Unanswered questions were considered incorrect

Table 14 presents individual responses for each question in the local grain basis section of the survey instrument. Forty-five (90%) survey respondents answered the knowledge question correctly indicating they could calculate local basis and 42 (84%) respondents knew what happens when local basis weakens. Thirty-one (62%) producers were able to calculate the basis between two elevators with 34 (68%) producers correctly analyzing a local basis chart. The number of producers able to determine the effect of weather conditions and market demand on local basis fell to 32 (64%) with only 26 (53.1%) of the respondents choosing the appropriate basis alternative given a specific market supply and demand situation.

It is interesting to note as the level of cognition increases for the local grain basis section the number of producers indicating they did not know the answer to a given question also increased. That number increased from five (10%) who indicated they did not know how to calculate local basis or interpret a basis chart to a high of ten (20.4%) producers who were unable to choose the appropriate basis alternative given a specific market situation.

Table 14. Participant responses to selected local grain basis questions categorized by Bloom's Taxonomy. (N = 50)

Basis questions*	Level of Cognition	Correct n/Percent	Incorrect n/Percent	I don't know n/Percent
7. How do you calculate local basis?	Knowledge	45/90%	-	5/10%
8. What do you expect when local basis weakens?	Comprehension	42/84%	2/4%	6/12%
9. What is the local basis between two elevators?	Application	31/62%	11/22%	8/16%
10. What does the chart indicate about the local basis?	Analysis	34/68%	11/22%	5/10%
11. Heavy drought has created an expected shortage of high protein wheat with continuing weak demand in Pacific Rim countries. Late rains resulted in a higher than expected yield. Which local basis scenario is most likely?	Synthesis	32/64%	12/24%	6/12%
12. Winter wheat harvest in the North-central Montana was better than expected. Kansas winter wheat yield was below average. Which basis alternative would you choose?***	Evaluation	26/53.1%	13/26.5%	10/20.4%

* Complete questions found in Appendix D

** Question had 1 non-response

The data in Table 15 represent the number of grain market function questions individual producers correctly answered on the survey instrument. There were five (10%) participants who correctly answered all the questions for this section with 18 [5+13] of the producers correctly answering five or more of the market function questions. Forty-four [5+13+20+6] (88%) respondents correctly answered three or more of the questions with only 6 [3+2+1] (12%) producers answering less than three correctly. The average number of correct answers for the grain market function portion of the survey instrument was 4.02 out of 6 or 67%.

Table 15. Number of correct answers on the grain market function section of the survey instrument.* (N = 50)

Number of correct answers**	n	Percent
6	5	10%
5	13	26%
4	20	40%
3	6	12%
2	3	6%
1	2	4%
0	1	2%

* Average score = 4.02 or 67%

** Unanswered questions were considered incorrect

The data contained in Table 16 presents individual responses for the grain market function questions contained in the survey instrument. Forty-two (85.7%) producers correctly identified the primary influence on the wheat futures price, 44 (88%) respondents identified the event that would have the greatest impact on wheat price and 40 (80%) producers correctly determined what effect strong speculation and strengthening Asian currency would have on the market. Producers appeared to have difficulty at the Application, Synthesis and Evaluation cognitive levels with 29 (61.7%) of the respondents being able to choose the appropriate planting option for a given market situation, 25 (51%) were able to determine what would cause the fall futures market to remain unchanged through planting and only 21 (43.8%) producers correctly predicted how the market would react to a United States Department of Agriculture market report.

The number of producers in this section who answered 'I do not know' increased from a low of 2 (4%) who did not know which event influences the wheat market and 3 (6.1%) producers who were unable to identify the primary influence on the wheat futures market, to a high of 15 (30.6%) producers unable to identify what would cause the market to remain relatively unchanged. Note the increase in producers indicating they do

not know the answer or who did not attempt an answer closely followed the increase in the level of difficulty or cognition level of the questions in this section.

Table 16. Participant responses to selected grain market function questions categorized by Bloom's Taxonomy. (N=50)

Market fundamental questions*	Level of Cognition	Correct n/Percent	Incorrect n/Percent	I don't know N/Percent
13. What primarily influences U.S. spring wheat futures price?***	Knowledge	42/85.7%	4/8.2%	3/6.1%
14. Which event would influence U.S. spring wheat price the most?	Comprehension	44/88%	4/8%	2/4%
15. U.S. wheat stockpiles are high and Texas and Kansas are expected to have an above average crop. Which planting option should you choose?#	Application	29/61.7%	14/29.8%	4/8.5%
16. Significant speculation on wheat with expectations for Asian currency to strengthen. What will this do to the futures market?	Analysis	40/80%	6/12%	4/8%
17. Fall futures have been unchanged through spring planting. What would cause this?###	Synthesis	25/51%	9/18.4%	15/30.6%
18. USDA reports large wheat carry over and a lower than expected yield in North Dakota. They also report that corn production is higher than expected. How would you expect the spring wheat market to react?^	Evaluation	21/43.8%	14/29.2%	13/27%

* Complete questions found in Appendix D ** Question has 1 non-response
 # = Question has 3 non-responses ## = Question has 1 non-response
 ^ = Question has 2 non-responses

The information in Table 17 represents the number of questions individual producers correctly answered on the grain marketing tool portion of the survey instrument. This section had the lowest score of the three sections of the survey instrument with an average score of 3.86 out of 6 or 64.3%. This section contained the

highest number of producers who correctly answered less than three of the questions, 11 [5+2+4] (22%) and the largest number of producers who correctly answered five or more questions, 24 [10+14] (48%).

Table 17. Number of correct answers on the grain marketing tool section of the survey instrument.* (N = 50)

Number of correct answers**	Frequency	Percent
6	10	20%
5	14	28%
4	6	12%
3	9	18%
2	5	10%
1	2	4%
0	4	8%

* Average score = 3.86 or 64%

** Unanswered questions were considered incorrect

The first thing one will notice about the information in Table 18 is the number of incorrect answers for application question (21), which had 21 (42.9%) producers answer incorrectly. One could attribute this high number to the inadvertent addition of a second potentially correct answer. The correct choice when the market is having a rally is to actually do nothing, however, a cautious or risk-averse individual could choose to buy a put option to protect against the possibility of a price decrease. The reader will also note an increase in the number of respondents who did not answer specific questions in this section and the researcher has no explanation for this.

Table 18 data indicates 41 (85.4%) producers know which of the marketing tools is similar to price insurance with 39 (79.6%) of the respondents correctly identifying what would restrict hedging activity and 37 (75.5%) participants knowing the definition of a minimum price contract. Thirty-one (63.6%) respondents were able to identify the

correct marketing tool to use if they were unsure of the market's direction, 24 (49%) producers correctly identified the marketing tool to use during a market rally and 21 (42%) participants were able to identify the appropriate marketing tool given specific wheat production information.

Table 18. Participant responses to selected grain marketing tool questions categorized by Bloom's Taxonomy. (N=50)

Marketing tool questions*	Level of Cognition	Correct n/Percent	Incorrect n/Percent	I don't know n/Percent
19. Definition of a minimum price contract.**	Knowledge	37/75.5%	4/8.2%	8/16.3%
20. Which grain-marketing tool acts like price insurance?#	Comprehension	41/85.4%	5/10.4%	2/4.2%
21. Which tool should be used if there are indicators of a market rally?##	Application	24/49%	21/42.9%	4/8.1%
22. What could cause a small amount of hedging activity?^	Analysis	39/79.6%	5/10.2%	5/10.2%
23. With the direction of the wheat market uncertain, which marketing tool should be used?^^	Synthesis	31/63.3%	5/10.2%	13/26.5%
24. Market has been mildly positive but the upcoming USDA reports are rumored to indicate significant crop damage due to drought. Which marketing tool should be used?	Evaluation	21/42%	17/34%	12/24%

* Complete question found in Appendix D

Question has 2 non-responses

^ Question has 1 non-response

** Question has 1 non-response

Question has 1 non-response

^^ Question has 1 non-response

The number of producers who indicated they did not know the answer to a question increased in this section of the survey instrument, from two (4.2%) who did not know which tool is similar to price insurance and 4 (8.1%) who did not know the

appropriate marketing tool for a market rally to a high of 13 (26.5%) producers who did not know which marketing tool to use in an unstable market situation.

Statistical Analysis

The researcher utilized coefficient convections developed by Davis (1971) for partial correlation analysis of the relationship between the demographic factors and individual performance. The coefficient convections are: .01-.09 negligible, .10-.29 low, .30-.49 moderate, .50-.69 substantial, and .70 and higher, very strong correlation.

The partial correlation analysis contained in Table 19 represents the correlation between observed demographic factors and an individual's overall performance on the test portion of the survey instrument. Results indicate a very strong correlation (.886) between age and level of education and individual performance on the test portion of the survey instrument. There is also a very strong correlation (.974) between risk attitude and grain marketing experience and overall performance. The reader will note that there is nearly zero correlation (.002) between age and grain marketing experience and low correlation (.126) between an individual's risk attitude and level of education.

Table 19. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their overall performance on the test portion of the survey instrument.*

Independent Variable	Age	Level of Education	Marketing Experience	Risk Attitude
Age	-			
Level of Education	.886	-		
Grain Marketing Experience	.002	.200	-	
Risk Attitude	.301	.126	.974	-

* partial correlations are out of 1.0

Table 20 contains the results from the partial correlation analysis between age, level of education, grain marketing experience, and risk attitude to an individual's performance on the local grain basis section of the survey instrument. Results indicate a strong correlation (.875) between age and level of education along with a very strong correlation (.981) between an individual's risk attitude and grain marketing experience and their performance on the local grain basis section.

Table 20. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the local basis section of the survey instrument.*

Independent Variable	Age	Level of Education	Marketing Experience	Risk Attitude
Age	-			
Level of Education	.875	-		
Grain Marketing Experience	.002	.230	-	
Risk Attitude	.330	.172	.981	-

* partial correlations are out of one

Analysis contained in Table 21 represents the correlation between the observed demographic factors and performance on the grain market function portion of the survey instrument. The reader will note the very strong correlations (.947) between age and level of education, and (.968) risk attitude and grain marketing experience and individual's performance on this section of the survey instrument. However, there is a negligible correlation (.002) between age and grain marketing experience and performance for the grain market function portion of the survey.

Table 21. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the grain market function section of the survey instrument.*

Independent Variable	Age	Level of Education	Marketing Experience	Risk Attitude
Age	-			
Level of Education	.947	-		
Grain Marketing Experience	.002	.212	-	
Risk Attitude	.275	.256	.968	-

*partial correlations are out of one

Table 22 contains results from the partial correlation analysis of the relationship between and individual's age, level of education, grain marketing experience, risk attitude and their performance on the grain marketing tool portion of the survey instrument. The reader will note the near zero correlation (.002) between age and grain marketing experience, and (.090) between risk attitude and level of education and the individual's performance for this section of the survey instrument. However, there is a very strong correlation (.984) between risk attitude and grain marketing experience, along with a strong correlation (.820) between age and level of education.

Table 22. Partial correlation analysis of an individual's age, education, grain marketing experience, risk attitude and their performance on the grain marketing tool section of the survey instrument.*

Independent Variable	Age	Level of Education	Marketing Experience	Risk Attitude
Age	-			
Level of Education	.820	-		
Grain Marketing Experience	.002	.170	-	
Risk Attitude	.325	.090	.984	-

* partial correlations are out of one

Table 23 presents the results of binary logistical regression analysis to determine the relationship between the independent variables and if an individual made the correct planting decision given a specific marketing situation. The relationship between the

independent variables and an individual's decision-making is not significant at $\alpha = .05$ but if α were .1 the relationship between age and decision-making would be significant.

Table 23. Binary logistical regression of the relationship between an individual's age, level of education, grain marketing experience and risk attitude and choosing the correct answer for question fifteen *

Independent Variable	Coefficient#	Standard Error	Significance
Age	.0897	.0489	.0667 [^]
Level of Education	.1682	.4251	.4251
Grain Marketing Experience	-.0102	.0539	.8502
Risk Attitude	-.5390	.4835	.2649

* Complete question found in Appendix D

Cox and Snell goodness of fit = .134

[^] Indicates a significant correlation at α .1 confidence level

Table 24 presents the results of a binary logistical regression analysis to determine the relationship between the independent variables and whether an individual chose the correct marketing tool to use during a bull market. The relationship between an individual's age and level of education and their decision-making is significant at $\alpha = .1$.

Table 24. Binary logistical regression of the relationship between an individual's age, level of education, grain marketing experience and risk attitude and choosing the correct answer for question twenty-one *

Independent Variable	Coefficient#	Standard Error	Significance
Age	-.0838	.0455	.0657 [^]
Level of Education	.4102	.2158	.0573 [^]
Grain Marketing Experience	.0400	.0518	.4403
Risk Attitude	.1956	.4815	.6845

* Complete question found in Appendix D

Cox and Snell goodness of fit = .155

[^] Indicates a significant correlation at $\alpha = .1$

CHAPTER 5

CONCLUSIONS, IMPLICATIONS AND RECOMMENDATIONS

The purpose of this study was to (1) identify selected demographic factors and their impact on an individual's knowledge of specific grain marketing tools and information and (2) establish a baseline concerning what producers know about local grain basis, grain market function and grain marketing tools. To accomplish this the researcher surveyed a volunteer group of producer participants of the 1999 – 2000 Montana MarketManager™ Program. The findings and conclusions of this study can only be applied to this set of producers.

Conclusions

Based on analysis of the data from this study the following conclusions were drawn:

(1) Study participants are involved in the Montana MarketManager™ Program for professional development.

(2) Overall, producers involved in this study have an averse attitude toward risk. However, they are more risk averse when it comes to their crop production than new market opportunities. Seventy-six percent of the study participants indicated they would

choose the crop insurance alternative with the lowest risk as opposed to only 34.7% of the producers who indicated they would only choose the market option with the lowest risk.

(3) The number of correct answers for the three test sections of the survey instrument indicates that this group of producers has a better understanding of local grain basis than the market function or grain marketing tools sections of the survey instrument.

(4) Participants in this study understand the basics associated with the three grain marketing sections of the survey instrument but have difficulty with application of that knowledge in evaluating marketing situations. The reader will note a difference in the number of producers who correctly answered questions about their knowledge and comprehension compared to the questions where they had to apply that knowledge to evaluate a situation and make decisions.

(5) There is a very strong correlation between risk attitude and grain marketing experience along with a strong correlation between an individual's age and level of education to their individual performance on the survey instrument.

Implications

The information contained in this study allowed the researcher to arrive at the following:

(1) Producer's difficulty at the higher cognitive levels may result from the lack of application based grain marketing education.

Recommendations

Recommendations for the Montana Grain Growers Association

(1) The Montana MarketManager™ Program's educational activities should focus their efforts on teaching producer participants how to apply their grain marketing knowledge to real world situations. The Montana Grain Growers Association should seek out instructors and educational material designed to teach producer participants how to use basic marketing knowledge to evaluate marketing situations and make decisions.

(2) The study participants should be reevaluated to determine the gains made as a result of their activities in the Montana MarketManager™ Program. This assessment should determine the effectiveness of the program's educational efforts impact they have on improving the producer's ability to apply their grain marketing knowledge and skills.

Recommendations for further study

(1) This group of study participants should be reexamined, during the fall or winter of 2000, upon completion of one year of educational activities associated with the Montana MarketManager™ Program. The purpose of this study should be to determine the gains, which study participants make as a result of their participation.

(2) Further evaluation of the study participants should include risk assessment to determine if an individual's risk attitude impacts their ability to apply what they learn and if participation in the Montana MarketManager™ Program changes their attitude toward risk. If further evaluation indicates that an individual's attitude toward risk interferes with learning how to apply grain marketing information, efforts should be made to

determine how risk interfered. Additionally, further investigation should closely examine the method used to determine an individual's risk attitude.

(3) Further evaluation of the Montana MarketManager™ Program should examine the impact that an individual's participation in Marketing Clubs has on their improvement in grain marketing. A large number of the study participants were involved in Marketing Clubs and discuss various marketing topics and this discussion could impact individual's level of improvement and should be included in further assessment.

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APPENDICES

APPENDIX A
INITIAL COVER LETTER


Montana Grain Growers Association

P.O. Box 1165
750 6th Street, SW (59404)
Great Falls, Montana 59401

Phone: 406-761-4596
Fax: 406-761-4606
E-Mail: mmm1@montanamarketmanager.org
Website: www.montanamarketmanager.org

Dear Producer:

Thank you again for taking time to help us improve the Montana MarketManager™ Program. Your continued assistance allows us to enhance the program to better meet your educational needs.

The enclosed survey is part of a one to three year study of the Montana MarketManager™ Program, which you agreed to participate in at the June Market Fundamentals workshop. The purpose of the study is to evaluate the impact of the program on your grain marketing skills. This survey is designed to collect important information that will allow us to establish a baseline of marketing knowledge for future comparison throughout the study. To establish this baseline we have created a series of questions or scenarios designed to evaluate what course of action producers would take given a specific situation.

Please read each question carefully and **completely** fill in the oval that corresponds to your response. We do ask that you keep the area around the ovals clear of any extra marks, which may cause confusion when we enter your responses. However, if you need to make notes or calculations, please feel free to use the right-hand margin or a separate sheet of paper. Only mark one response for each question with the exception of questions 1 & 3, where you should mark all responses that apply.

Like all other information you have provided, individual responses will remain confidential and results will only be released in an aggregate form. To say thank you for your continued support, respondents will be registered to win either a MarketManager™ long sleeve denim shirt or one of five MarketManager™ caps.

So please take a few minutes to complete the enclosed survey and return it by November 9th, which marks the beginning of the winter workshop series. We have enclosed a self-addressed, stamped envelope for your convenience in returning the survey

Again, we appreciate your continued support of the Montana MarketManager™ Program, with your help we are confident that we can create a program that will meet your educational needs. If you have any questions concerning the survey, please call Brian at 406-994-5778 or e-mail at bkdennis@montana.edu.

Sincerely,
Richard Owen
Vice-President of Program Development
Montana Grain Growers Association

Brian Dennis
Graduate Teaching Assistant
Montana State University-Bozeman

APPENDIX B
FOLLOW-UP LETTER

**Montana Grain Growers Association**

P.O. Box 1165
750 6th Street, SW (59404)
Great Falls, Montana 59401

Phone: 406-761-4596
Fax: 406-761-4606
E-Mail: mmm1@montanamarketmanager.org
Website: www.montanamarketmanager.org

November 15, 1999

Dear Producer;

On October 15th we mailed out a survey designed to evaluate producers' knowledge of grain marketing tools and concepts. However, as of today we have not received your response, which is needed to help create a picture of what Montana small grain producer understands about commodity marketing tools and concepts. We realize that you are busy with preparations for winter but we are anxiously awaiting your response. To date we have received approximately half of the study participants' responses but we need your response, which you agreed to provide.

For your convenience we have enclosed another copy of the survey which is designed to establish a baseline of knowledge that we can use to evaluate the success of the Montana MarketManagerTM Program. Survey responders have said that the survey only takes about 15 minutes to complete and return. So please take a few minutes of your time to complete the survey and return it in the self-addressed stamped envelope that we have provided.

As always, information you provide will remain confidential and will only be released in an aggregate form. If you have any questions concerning the survey, please call Brian Dennis at 406-994-5778 or the MGGA office at 406-761-4596. Thank you again for your assistance and remember, returning your survey will register you to win new Montana MarketManagerTM merchandise.

Sincerely,

Randy Johnson
Executive Secretary
Montana Grain Growers Association

Richard Owen
Vice-President of Program Development
Montana Grain Growers Association

APPENDIX C
REMINDER POSTCARD

Dear Producer,

On October 15th we sent out a survey designed to establish a baseline of producer knowledge for participants in the Montana MarketManager™ Program. We know you are busy with you fall work and preparations for winter, but would appreciate you taking a few minutes to complete the survey and return it in the self-addressed stamped envelope we provide. If you have already completed the survey, thank you and please disregard this notice.

The information from this survey will be used to establish the baseline, from which we will measure the success of the Montana MarketManager™ Program. Therefore, your input is valuable and will help us to enhance you marketing skills.

Sincerely,

Richard Owen
Vice President of Program Development
Montana Grain Growers Association

Brian Dennis
Graduate Teaching Assistant
Montana State University

APPENDIX D
SURVEY INSTRUMENT

1. Why are you participating in the Montana MarketManager™ Program? (mark all that apply)

- a. To learn more about grain marketing
- b. To become more involved with the Montana Grain Growers Association
- c. To improve my use of grain marketing tools
- d. To meet other producers from around Montana
- e. Other (please specify) _____
- f. I do not know

2. How long have you been involved with the grain marketing decisions on your operation?

- a. 0-5 years
- b. 5-10 years
- c. 10-15 years
- d. 15-20 years
- e. 20 or more years
- f. I am not involved with marketing decisions

3. How have you obtained your current grain marketing knowledge and skills? (mark all that apply)

- a. Sponsored workshops
- b. College coursework
- c. From material found on the internet
- d. From information or material provided by the local elevator or broker
- e. Personal experience (i.e. trial and error in the marketplace)
- f. Previous job experience (i.e. broker, grain buyer)
- g. I am not familiar with grain marketing tools and concepts

4. The April market forecast indicates spring wheat prices may increase 15 cents by harvest. You have the opportunity to enter a forward contract for as much of your spring wheat production as you want for 5 cents over your estimated breakeven. Given this situation what would you do?

- a. Contract over half of my production
- b. Contract less than half of my production
- c. I would wait to see if the price would increase
- d. I need more information

5. Historically, your area receives significant hail damage one out of ten years. Your lender does not require you to carry hail insurance as part of your operating loan but you have the opportunity to insure your crop. Which of the following alternatives would you choose?

- a. Insure more than 50% of my crop
- b. Insure less than 50% of my crop
- c. I would not insure my crop
- d. I need more information

6. You have been presented with two opportunities to sell your wheat production. The first opportunity will require a long-term arrangement with a start up bakery, which has specific quality requirements that require some management changes on your part. There is no guarantee that the new bakery will succeed but they are offering to pay no less than 50 cents over the market price every year. The second opportunity is a one-year forward contract with the local elevator for 10 cents over this year's breakeven. What would you do?

- a. Contract my full production with the bakery
- b. Contract my full production with the elevator
- c. Split my production between the bakery and the elevator
- d. I need more information

7. Which of the following do you use to calculate local basis?

- a. futures price and options price
- b. futures price and cash price
- c. futures price, option price and cash price
- d. I do not know

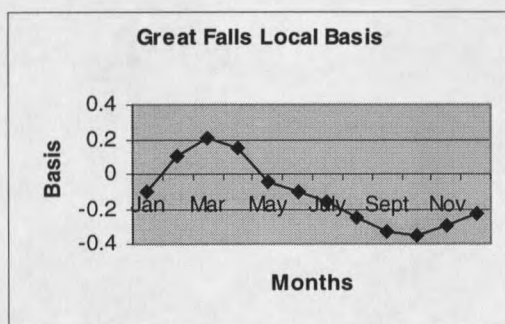
8. What would you expect to happen if the local basis weakens?

- a. The spread between futures price and cash price will widen
- b. The spread between futures price and options price will widen
- c. The spread between futures price and the export price will widen
- d. I do not know what will happen

9. The local elevator is offering a cash price of \$3.24 per bushel for 14% spring wheat and a terminal market 75 miles away is offering \$3.33 per bushel. Your costs for transport are 12 cents per bushel to the terminal market and 4 cents to the local elevator. What is the local basis between the two markets?

- a. 17 cents per bushel
- b. 9 cents per bushel
- c. 8 cents per bushel
- d. I do not know

10. What does the following chart say about the local basis?



- a. Cash price is higher than futures price in March
- b. Cash price is higher than futures price in September
- c. Transportation costs in May are near zero
- d. I do not know

11. Severe drought in North Dakota in early May led forecasters to predict that there would be a shortage of high protein wheat this year. Export demand for high protein wheat to Pacific Rim countries is expected to remain weak. There were timely rains in June, which produced a better crop than expected. With other considerations being constant, which of the following local basis scenarios is most likely for the given year?

- a. The local basis would have been weak early, then strengthened with the low demand
- b. The local basis would have been strong early, then weakened with the late rains
- c. The local basis would have been weak early, then strengthened with late rains
- d. I do not know

12.The Burlington Northern Santa Fe Railroad reports they are taking 10% of their grain cars out of service from August 1 until January 15 for repairs. The winter wheat harvest in North-central Montana was better than expected and the spring wheat harvest is also predicted to be above average. However, winter wheat production in Kansas was below average due to an extremely dry winter. Given this information which of the following alternatives would you choose?

- a.Enter a basis contract because you think the basis for your area is going to strengthen
- b.Enter a basis contract because you think the basis for your area is going to weaken
- c.I do not think the local basis is going to change so I would do nothing
- d.I do not know

13.The futures price for U.S. spring wheat is primarily influenced by which factors?

- a.Global wheat production and consumption
- b.US wheat production and consumption only
- c.Global wheat production and US wheat consumption only
- d.I do not know

14.Which of the following events would increase U.S. spring wheat price the most?

- a.Above average Egyptian wheat crop
- b.Crop disease problems in Mexico
- c.Serious drought in Kansas
- d.I do not know

15.The USDA reports that wheat stockpiles are high, and the winter wheat crop in Kansas and Texas is expected to be above average. Having this information, which of the following options should you choose?

- a.Plant more spring wheat
- b.Plant less spring wheat
- c.Replant your winter wheat with spring wheat
- d.I do not know

16.There appears to be significant speculation on the futures market for wheat as currencies in Asia are expected to strengthen against the dollar. What will this mean for the futures market?

- a.Prices will strengthen
- b.Prices will weaken
- c.Prices will move laterally
- d.I do not know what it will mean

17.Fall futures markets for wheat have primarily been unchanged through the spring planting season (lateral movement). A reason for this movement would include which of the following?

- a.Strong Asian demand for U.S. wheat with low stocks
- b.Increased Asian demands for U.S. wheat and large wheat stocks
- c.Large amounts of speculation on the futures market but little hedging
- d.I do not know

18.USDA reports indicate that the wheat yield in North Dakota is lower than expected and that there is still a large carry over from last year's production. The USDA also reports that the corn yield in the mid-west is substantially higher than they thought that it was going to be. How would you expect the spring wheat market to react and what would you do?

- a.The futures price will increase so you should lock in a price
- b.The futures price will decrease so you should lock in a price
- c.The futures price will increase so you should do nothing
- d.I do not know what to expect

19. Which of the following best describes a minimum price contract?

- a. Contract that allows the buyer to sell a commodity or futures contract
- b. Contract that sets the cash price and basis
- c. Contract that sets the cash price but allows for market price increase
- d. I do not know

20. Which of the following grain marketing tools acts most like price insurance?

- a. A futures contract
- b. An options contract
- c. A basis contract
- d. I do not know

21. Market indicators show that spring wheat price is going to increase prior to harvest. Knowing this, which of the following options should you choose?

- a. Enter a forward contract with price set today
- b. Buy a put option
- c. Do nothing
- d. I do not know

22. It appears that few producers are hedging wheat for fall harvest even though random factors can still cause price fluctuation. Little hedging may result from which of the following situations?

- a. Strong expectations of a large harvest
- b. Strong expectations for increased grain demand
- c. Banks lowering interest rates
- d. I do not know

23. The wheat market for the fall appears to be clouded with much uncertainty as economic conditions are in a state of flux. With this uncertainty producers would most likely protect the sale of wheat with, which of the following alternatives?

- a. Selling strictly cash
- b. Shorting a futures contract
- c. Buying a put option
- d. I do not know

24. For the past several months the spring wheat futures price has been mildly positive among speculation of possible drought damage. It is anxiously awaiting the USDA's crop condition report, which is rumored to say that the corn, soybean and spring wheat crops have suffered significant drought damage. The current spring wheat futures contract is \$3.50 with a negative basis of 50 cents to Great Falls. A put option with a strike price of \$3.40 has a premium of 15 cents per bushel with a commission cost of 2 cents per bushel. A short futures contract at \$3.50 would cost 2 cents per bushel in broker costs. With this information and your belief that the futures price will increase, which of the following options would you choose?

- a. Buy the put option
- b. Short the futures contract
- c. Do nothing
- d. I do not know

Contact Information:

Name: _____
 Address _____

APPENDIX E
PARTICIPATION SURVEY

A. How many acres of the crops listed below did you produce in 1998? (Enter an amount)

- | | |
|-----------------------|---------------------------------------|
| 1. _____ Winter Wheat | 5. _____ Spring Wheat |
| 2. _____ Malt Barley | 6. _____ Feed Barley |
| 3. _____ Canola | 7. _____ Peas |
| 4. _____ Lentils | 8. _____ Other (Please specify) _____ |

**B. How many head of the livestock listed below did you own or produce during 1998?
(Enter an amount for all that apply)**

- | | |
|----------------------------------|--------------------------|
| 1. _____ Brood Cows | 5. _____ Production Ewes |
| 2. _____ Feeder/Stocker Calves | 6. _____ Production Sows |
| 3. _____ Yearling Cattle | 7. _____ Slaughter Hogs |
| 4. _____ Finished Steers/Heifers | 8. _____ Not Applicable |

**C. Estimate the percentage of your 1998 wheat production you sold on a cash basis. _____ %
(Cash basis is defined as selling your crop without signing a contract or establishing a price prior to delivery)**

D. How many local elevators do you have the opportunity to sell to? _____

E. If you have the opportunity to sell to more than one elevator, how many do you check with for the best cash price? _____

F. Which of the following grain marketing tools or strategies have you used in the last four years? (Check all that apply)

- | | |
|-------------------------------|---------------------------|
| 1. ___ Cash Sales | 4. ___ Forward Contract |
| 2. ___ Hedge with Futures | 5. ___ Hedge with Options |
| 3. ___ Minimum Price Contract | 6. ___ Basis Contract |

G. If you have **not used **any type** of grain marketing tools, other than cash sales, before, what was the reason(s)? (Check all that apply)**

- | | |
|---|-------------------------------------|
| 1. ___ Tools were too expensive | 5. ___ Lack of knowledge |
| 2. ___ Size of operation prevented use | 6. ___ Lack of time |
| 3. ___ Fear of being 'burned' by market | 7. ___ Lack of access to tools |
| 4. ___ Market prevented tool use | 8. ___ Other (Please specify) _____ |

**H. What source(s) do you use to obtain current market information? (i.e., daily or weekly info)
(Check all that apply)**

- | | |
|-----------------------------------|---------------------------------------|
| 1. ___ Local Newspaper | 6. ___ Radio |
| 2. ___ National Newspaper | 7. ___ Local Elevator |
| 3. ___ Your Lender | 8. ___ Internet |
| 4. ___ Satellite Link (DTN/other) | 9. ___ Montana MarketManager Web-site |
| 5. ___ Broker/Market Advisor | 10. ___ Other (Please specify) _____ |

**I. What is your primary source(s) for obtaining market outlook/forecast information?
(Check all that apply)**

- | | |
|----------------------------------|---------------------------------------|
| 1. ___ USDA Reports | 5. ___ University Outlook Information |
| 2. ___ Newspaper Articles | 6. ___ Magazine Articles |
| 3. ___ Market Advisor Newsletter | 7. ___ Commodity Broker Newsletter |
| 4. ___ Commodity Organizations | 8. ___ Other (Please specify) _____ |

J. What is the highest level of education you have completed?

- 1. High School Diploma
- 2. Two Year Associate Degree
- 3. Master's Degree
- 4. Vocational/Technical School
- 5. Bachelors Degree
- 6. Other (Please specify) _____

K. Do you consider farming or ranching to be your primary occupation? (i.e., >50% of you or your family's income)

- 1. Yes
- 2. No

L. Are you currently employed or have you ever been employed in one of the following occupations? (Check all that apply)

- 1. Commodity Broker
- 2. Elevator Operator
- 3. Crop Insurance Sales
- 4. Commodity Trader
- 5. Grain Buyer
- 6. Lender
- 7. Consultant
- 8. Other _____
- 9. Not Applicable

M. Are you currently a member of the Montana Grain Growers Association?

- 1. Yes
- 2. No

N. Are you currently involved in a Marketing Club?

- 1. Yes
- 2. No

O. If you do not belong to a marketing club, are you considering joining one in the next year?

- 1. Yes
 - 2. No
- Why or Why not? _____

Q. Please indicate your age: _____

R. If you do not currently utilize other grain marketing tools besides cash sales or forward contracting, what would **specifically** need to happen for you to start using new grain marketing alternatives?

Personal Needs (i.e., education) _____

Market Situation/Outlook (i.e., price change) _____

S. Are you willing to take part in a 1 to 3 year research study that examines your use of grain marketing tools? Your information will remain **anonymous** throughout the study and your name, business or financial information will never be disclosed.

- 1. Yes
- 2. No

APPENDIX F
PARTICIPATION SURVEY RESULTS

Participation Survey Results

N = 72

A. How many acres of the crops listed below did you plant in 1998?

Crop Produced	Total Acres	Mean Acres
Winter Wheat	42,782	594.19
Malt Barley	8,220	114.17
Canola	712	9.89
Lentils	1,930	26.81
Spring Wheat	111,678	1,551.08
Feed Barley	11,343	157.54
Peas	4,670	64.86
Other	14,048	195.11
<ul style="list-style-type: none"> ◦ Durum, Hay, Chickpeas, Mint, Safflower 		

B. How many head of livestock listed below did you own or produce in 1998?

Livestock Production	Total Head Produced	Mean Produced (N=72)	Mean Produced(N=33)*
Brood Cows	4,928	68.44	149.33
Feeder/Stocker Calves	3,030	42.08	91.82
Yearling Calves	2,083	28.93	63.12
Finished Steers/Heifers	80	1.11	2.42
Production Ewes	880	12.22	26.67
Slaughter Hogs	5	.07	.15

* Number of study participants who produce livestock

C. Estimate the percentage of your 1998 wheat production you sold on a cash basis.

- Average 50%

D. How many local elevators do you have the opportunity to sell to?

- Average 3.07

E. If you have the opportunity to sell to more than one elevator, how many do you check with for the best cash price?

- Average 2.49

F. Which of the following grain marketing strategies or tools have you used in the last four years?

Marketing Strategies	n
Cash Sales	69
Hedge with Futures	17
Minimum Price Contract	16
Forward Contract	41
Hedge with Options	20
Basis Contract	21
Did not answer	1

G. If you have not used any type of grain marketing tool, other than cash sales, before what was the reason(s)?

Reasons	n
Tools were too expensive	5
Size of operation prevented use	0
Fear of being "burned" by the market	19
Market prevented tool use	4
Lack of knowledge	35
Lack of time	9
Lack of access to tools	12
Other	4
Did not answer	26

H. What source(s) do you use to obtain current market information?

Source of information	n
Local Newspaper	25
National Newspaper	7
Your Lender	0
Satellite Link (DTN/Other)	39
Broker/Market Advisor	17
Radio	51
Local Elevator	66
Internet	32
Montana MarketManager™	38
Other	3
* Television	

I. What is your primary source(s) for obtaining outlook/forecast information?

Sources of outlook information	n
USDA Reports	45
Newspaper Articles	38
Market Advisory Newsletter	26
Commodity Organization	30
University Outlook Information	5
Magazine Articles	41
Commodity Broker Newsletter	14
Other	9
Did not answer	1

J. What is the highest level of education you have completed?

Education	n	Percent
High School	19	26.39
Two Year Associates Degree	4	5.56
Vocational/Technical School	7	9.72
Bachelor's Degree	36	50.00
Master's Degree	2	2.78
Other	3	4.17
Did not Answer	1	1.39

K. Do you consider farming or ranching to be your primary occupation?

- Yes 100%
- No 0%

L. Are you currently employed or have you ever been employed in one of the following occupations?

Occupations	n
Commodity Broker	0
Elevator Operator	1
Crop Insurance Sales	1
Commodity Trader	0
Grain Buyer	0
Lender	2
Consultant	0
Other	5
Not-applicable	42
Did not answer	21

M. Are you currently a member of the MGGA?

- Yes 81.94% 59
- No 18.06% 13

N. Are you currently involved in a marketing club?

- Yes 54.17% 39
- No 46.83% 33

O. If you do not currently belong to a marketing club, are you considering joining one soon?

- Yes 20
- No 12
- Did not answer 40

Q. Please indicate your age.

- Average 45.61

S. Are you willing to take part in a 1 to 3 year research study that examines your use of grain marketing tools?

- Yes 72

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