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Teaching Risk Management Principles to Livestock Producers Through Production-Oriented Workshops

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Introduction

Livestock production in the 21st century is fraught with risk from a variety of sources. It is no longer simply price fluctuations experienced at the local livestock auction yard that producers must worry about, but market fluctuations caused by political decisions halfway around the world and the impacts of non-agricultural influences such as renewable energy and a host of others that confront the modern livestock producer. If producers intend to survive in today's production climate, they must employ sound risk management practices that may involve which enterprises they choose to embark on, more sophisticated marketing of their products and additional business and debt management strategies (Held & Zink, 1982; Held & Helmers, 1981).

The 1996 Federal Agriculture Improvement and Reform (FAIR) Act not only changed many commodity payment programs which served as safety nets for agricultural producers, but also mandated USDA to provide risk management education to counteract the effects of reduced government payments through improved agricultural management. Many factors have proven to negatively impact this educational effort. Unfortunately, the author has found that risk management education is often not popular with livestock producers, even though they may recognize their need for this type of education. Another factor which hinders the risk management education effort is the perception by educators that they are not as knowledgeable as their producer constituencies in many areas of agricultural risk management (Martin, et. al.,

2003). Producers are also reticent to attend extended, in-depth seminars, opting instead for shorter workshops coupled with follow-up programming (Nagler et al., 2007).

In order to overcome this plurality of hurdles to effective risk management education, Extension faculty must look at other ways to teach principles of risk management to their clientele who are producing livestock.

This bulletin explains how to effectively marry risk management education, which producers do not have a natural affinity for, and production-oriented education which is usually very popular with producers. To effectively demonstrate the process the author will use the success of the Beehive Master Beef Manager (MBM) Program as a model.

Extension Education Principles

In their book entitled, "*Adult and Continuing Education through the Cooperative Extension Service*", Prawl, Medlin and Gross stated, "Program development is a process of planning, implementing and evaluating an education effort. It is a series of deliberate, thoughtful considerations that lead to a thoroughly prepared and well-executed plan of action". (Prawl, Medlin and Gross, 1984) This principle is especially important when teaching risk management principles through production workshops. Risk is found in all areas of agricultural production and sometimes multiple types of risk can impact the same enterprise.

Success in joining risk management and production in a series of workshops can be ensured by

following some specific programming principles as listed by Prawl, Medlin and Gross.

Program Development Is Based on Needs, Concerns and Problems of Clientele

Livestock producers want to attend programs that provide them with knowledge they can immediately take home and use to improve the management of their herds and flocks. Bowe, et. al. (1999) correctly stated that “awareness of constituent needs produces a timely and practical Extension program.” If the livestock producer can see that the workshop will deliver new ideas relative to one or more of the perceived risks currently being experienced in the operation, participation is more likely.

Extension faculty need to also remember that some producers have off-farm employment which limits the time available to them to obtain additional management knowledge. This increases the importance of ensuring the workshop addresses clientele concerns and needs. Taking a “shotgun” approach, hoping to meet the needs of clientele, is not a viable planning model. An educator may only have one chance to draw the producer into a workshop series on managing risk and if that opportunity is wasted there may not be another opportunity for some time.

In the MBM program producers established the educational priorities for a given teaching location based upon the perceived risks they were experiencing on their own operation. To facilitate this, the local site coordinator invited producers to a meeting addressing a timely production-oriented topic. This part of the workshop served as the enticement to gain initial participation. Following the production segment, attendees were introduced to the concept of risk and its pervasive nature in all the various aspects of their business, including the topic covered earlier in the workshop. They then conducted their own needs assessment using a matrix listing a variety of different topics across all risk types (see Figure. 1), and prioritized their educational needs relative to risk management, establishing the educational priorities for their teaching site. The matrix also has some flexibility for them to enter other topics they feel are needed which have not been included in the printed matrix.

Programming Is Done with People, Not for Them

One of the keys to the success of MBM is that the producers direct the program, are responsible for the majority of topics taught and the order in which they are taught. While Extension delivers the risk management information, producers attending each workshop are encouraged to participate through active learning

exercises and interaction both with the instructor and with each other. Utilizing principles of active learning enables a synergy which enhances knowledge transfer and allows participants an opportunity to envision how risk management can be applied. Additionally, utilizing the active learning model allows the instructors who are often area or statewide specialists to develop a closer rapport with the producers, thus providing producers with a broader resource base to draw on when faced with additional challenges within their operations.

Program Development Is a Continuous Process

Programming must be looked at as a continuum which is always in flux. If the needs of producers are truly at the forefront of programming objectives, the program must contain enough flexibility to enable it to adapt as producer needs change. One way to ensure the program continues to meet producers changing needs is by conducting periodic evaluations which not only evaluate the learning which has occurred, but also act to survey producers with regard to changes in their risk profile and perceptions. This latter process can be invaluable as Extension faculty work to plan future programming efforts.



Programs Are Based on a Thorough Analysis of Facts Relevant to a Given Situation.

When teaching producers about managing risk through classes developed using the previous principles discussed above, much of the analysis of relevant facts associated with the salient issues being addressed are accomplished through introspection by the producers with respect to their own operations. The critical aspect here is that the producers are adequately schooled, prior to establishing the workshop topic priorities, in the different types of risk, how risk

Figure 1. MBM Program matrix used in identifying producer educational priorities based upon perceived risks within their operations. Note: “Core Topics” are best management practice workshop topics identified by the teaching team to be critical in any locale for achieving a complete risk management educational experience

Beehive Master Beef Manager Program Curriculum Priorities		Location: <u>Any County U.S.A. - 2007</u>	
Subject Matter	CCMG References	Core Topics	Producer Priorities
Nutritional Management			
Supplementation on Range	CL303, 317, 318, 322, 1170		
Mineral Nutrition	CL327, 381		
Feed Quality & Safety	CL305, 306, 365, 370, 608, 609	✓	
Animal Health & Quality Assurance			
Calfhood disease management	CL607, 644, 645, 646, 648, 649, 654, 678		
Herd Health Program Design & Calendar	CL118, 132, 602, 605, 650, 747, 748	✓	
Disease management in mature animals	CL600, 601, 639, 640, 690, 691		
BQA Best Management Practices	CL200, 213, 290	✓	
Handling & Facility Design	CL210, 791, 792		
Preventing Quality defects	UT BQA Manual		
National Animal ID Program	CL285		
Biosecurity	CL602		
Business Planning & Management			
Operational Financing	CL145, 917, 942, 950, 951	✓	
Tax Planning	CL1180		
Estate Planning- Generational transfer			
Keeping records for Management	CL900, 918		
Employee Relations/Management			
Marketing & Risk Management			
Risk Management Agency Tools a. Risk Assessment b. Right Risk c. Futures & Options d. Insurance	Right Risk (Intro to Risk)	✓	
Marketing Options a. Marketing calves b. Retaining ownership c. Culls	CL150, 800, 805, 815, 816, 823, 830	✓	
Diversification/Strategic Planning a. Alternative Enterprises b. Niche Marketing	CL 104, 108, 925, 930,		
Genetics & Reproduction			
Heifer Selection/Development	CL140, 745, 932		
Bull Selection & Management	CL421, 424, 425, 435, 436, 1038	✓	
Calving Season Management	CL115, 117, 410		
Understanding EPDs	CL1037		
Natural Resource Management			
Public Lands Policy			
Planning for Drought	CL1100, 1110, 1130, 1170, 1175		
Grazing Management	CL125, 500, 503, 522, 540, 545, 550	✓	
Grazing Behavior	BEHAVE materials		

types impact their operation, and how to identify which risk types are at play in their various enterprises.

The method used in the MBM program to teach producers about how different types of risk and risk management can change the complexion of a given enterprise is accomplished by allowing workshop participants to work through a Right Risk® computer simulation of a livestock operation. To help demonstrate the importance of risk management, the instructor of this segment “plays” along with the class. However, instead of attempting to manage any risk like the class is doing, the instructor goes with the status quo and makes no attempt to manage risk. Upon completion of the simulation, even if the working groups have done minimal risk management, their net income is usually significantly larger than the instructor’s. This not only allows them to begin thinking in terms of risk management in their own operations, but it also serves to energize them to grasping the desire to manage their risk.

Once these items are addressed, the producers can then objectively examine their operations and prioritize which topics will provide them with the tools and knowledge they need to implement in order to effectively manage their risk.



Program Development Leads to Greater Cooperation, Coordination and Efficiency.

As program development progresses, “partnerships,” both within the framework of Extension and amongst external organizations such as commodity groups, grazing associations, farm organizations, other federal or state agencies, affiliated or supporting private industry and even Extension programming from other states, can increase the overall effectiveness and ultimate implementation of transferred knowledge. Rowe et al. (1999) stated that cooperation between service groups extends program scope. When teaching risk management through production-oriented workshops, these

partnerships become even more critical, in that the very nature of risk requires a multi-disciplinary approach.

Every consequence of risk, whether it is financial, market, legal/institutional, human or production, will have altering effects on enterprises after some fashion. Therefore, the approach to address these must also be multi-faceted and will require these partnerships. The MBM program has been able to address producer priorities using state-wide Extension specialists and county Extension faculty, but has the flexibility to bring in external assistance as needed. Bringing together a teaching team consisting of disciplinary specialists and county faculty which are all on equal status on the team has demonstrated a synergy which has strengthened cross-county working relationships both amongst the participating team members and the producers in some locations.

Furthermore, because the program was developed around the matrix seen in Figure 1 above, the topics being addressed at the various teaching locations were very similar even though the order in which they are addressed varies from location to location. This enabled the faculty members called upon to teach the various workshops, to develop presentations which can be taught at multiple locations with only minor revisions to address local variables which may differ between locales. This has increased the efficiency in both teaching and coordination of the program across many counties in the state, since the coordinators know which educator is teaching particular topics and can make adjustments in the teaching schedules to accommodate those workshops.

Program Development Is a Teaching-Learning Process

Most successful program development is truly both a teaching and learning experience, and often both the educators and constituents are teaching and learning together. In the developmental stages of the MBM program, the Extension team developing the program wanted to teach cattle producers best management practices relative to beef quality assurance. Additionally, the team wanted the program to be producer-driven, thus ensuring that the needs of the producers were being met. The team decided to pilot the program in two county locations to examine whether this model would be viable. As the program debuted and the producers began listing their needs, the Extension team quickly learned that the needs being identified by the producers far exceeded the bounds established in the realm of beef quality assurance. Upon further examination, the broad spectrum of risk management provided the avenue through which both the original program objectives and producer identified needs could be met.

This teaching/learning process is accentuated if active learning is employed in the workshops, as producers are encouraged to examine and share how principles being taught can be applied in their own operations.

Program Development Provides for the Evaluation of Methods and Results

Evaluation should not be the culminating event of a program, but should be conducted continually over the course of program workshops to enable educators, through the collection of valuable information with regards to educational impact and effectiveness of methodologies used, to make changes that maximize impact and effectiveness in meeting the needs of the clientele.

Additionally, as budgets become tighter, funding entities and Extension administrators are increasingly requiring measurable impacts from the funding they provide. Carefully designed evaluation instruments can provide immediate impacts for specific workshops and periodic snapshots of longer-term implementation of workshop principles. This information can then be used to justify the outlay of program resources by University administrators and funding sources in the case of extramural funding.

Two evaluation tools that have been employed successfully in the MBM program are pre-/post-workshop evaluations and annual mail-out surveys. Each evaluation instrument has a very specific purpose in its use.

The pre-/post-workshop evaluations assess producer understanding of various topics that will be covered over the course of the workshop. The instrument is given to participants as they enter the venue and they are asked to complete the pre-workshop section of it before the workshop begins. At the conclusion of the workshop, they are asked to complete the post-workshop portion. The responses are then analyzed by conducting a t-test analysis assuming unequal variance. The advantage of this type of evaluation is that statistical significance in knowledge transfer can be demonstrated with as few as three participants. These evaluation instruments measure immediate, self-assessed understanding of workshop concepts. Additional questions can be added such as, 'How do you plan to implement the concepts you learned about in the workshop today in your own operation?' These types of questions can give some indicator as to expected implementation impacts and can be valuable in planning future workshops on similar topics.

The annual program summary evaluation which is mailed to all program participants is a two-page

instrument which seeks to determine longer-term implementation of program concepts taught over the course of the entire year. It asks for more extensive information relative to implementation, value of specific individual programs, and seeks input from constituents relative to changes they wish to see made in future workshops.

The key to success in using this type of evaluation instrument is follow-up. The first year this was used, the teaching team had a completion/return rate of 26 percent using a single mailing. To improve this rate, the team is using multiple mailings with telephone follow-up by both the local teaching site coordinator and the teaching team.

Examples of both types of evaluation instruments can be found in the Appendix at the end of the bulletin.

Application

The following are specific examples of how risk management principles were taught through production-oriented workshops held as part of the Beehive Master Beef Manager Program.

Heifer Selection and Development and Financial Risk Management

During a workshop on selecting heifers and developing them to enter the cow herd, the instructor included financial considerations which should be examined as part of the process. Primary in those considerations are the actual costs relative to raising a heifer from weaning through parturition with her first calf. The reproductive consequences of feeding heifers excessively leading to reduced reproductive efficiency was addressed, including consequences relative to both feeding costs and future reproductive performance, and impacting overall lifetime profitability.

Additional financial considerations addressed were the need to manage first-calf heifers and second-calf cows differently when compared to the mature cow herd to ensure their continuance in the herd, thus spreading the development cost over more calves and reducing cow fixed costs accordingly.

Cattle Facility Design and Safe Cattle Handling Practices and Production, Market and Human Risk Management

A workshop on correct facility design and safe cattle handling emphasized several different risk management principles. First, the instructor showed how adequate, correctly designed facilities can have impacts on production risk by reducing stress-related illness and injury when cattle are handled quietly in facilities during processing and treatment. This can carry on into reduced

market risk as a result of marketing cattle under beef quality assurance guidelines that are free from bruises and other such injuries which reduce the quality, quantity and, ultimately, overall profitability of the beef carcass.

Finally, the instructor taught how correct, safe handling practices, coupled with adequate handling facilities can reduce the risk of serious or even fatal injury to farm workers by overly excited cattle.

As part of this workshop, a set of miniature corrals and working facilities depicting correct and incorrect designs were used in the active learning segment of the workshop. The participants were given red and green colored stickers and instructed to place the red stickers on every fault or negative part of the various designs and the green on each portion depicting correct handling practices or designs. Following the exercise the class discussed each sticker position, why a negative label was placed on it, and how the design or practice could be changed to make it a correct design.

Beef Quality Assurance and Market and/or Legal Risk Management

Several risk management principles are inherent in any workshop on beef quality assurance. Emphasis on applying best management practices such as selecting correct injection sites for treatment and vaccinations; practicing biosecurity relative to feed acquisition and storage; animal welfare relative to how animals are handled; and correct culling processes all have numerous implications relative to reducing market risk exposure.

When discussing the need for complete and accurate treatment/vaccination records, risk management relating to legal risks such as withdrawal times, chemical residues and demonstrating responsible drug and vaccine use in the herd can be emphasized. These issues also have ramifications relative to market risk exposure which can be discussed.

These are just three of many different ways in which risk management principles can be emphasized when teaching livestock producers in production-related workshops. There are many others and really the educator is only limited by one's own imagination as to how to effectively interject risk management into production workshops.

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Conclusions

Production workshops are a viable way to teach risk management principles to livestock producers. Livestock producers enjoy participating in production-oriented workshops and can be somewhat reticent to participate in workshops dealing solely with risk management. As risk is addressed more and more through production workshops, it is the belief of the author that producers will become more comfortable with the concept of risk in their operations and more willing to participate in risk management educational efforts.



References

- Held, L. J. & Helmers, G. A. (1981). Growth and survival in wheat farming: The impact of land expansion and borrowing constraints. *Western Journal of Agricultural Economics*, 6(2), 207-216.
- Held, L. J. & Zink, R. A. (1982). Farm enterprise choice: Risk-return tradeoffs for cash-crop versus crop-livestock systems. *North Central Journal of Agricultural Economics*, 4(2), 11-19.
- Martin, S. W., Vergara, O., Patrick, G. F., Coble, K. H., Knight, T. O. & Baquet, A. E. (2003). Extension educators' perceptions of risk management training needs. *Journal of Extension* 41(4) <http://www.joe.org/joe/2003august/rb7.shtml>.
- Nagler, A., Bastian, C. T., Hewlett, J. P. & Weigel, R. R. (2007). Risk management for ag families: Evaluation of an integrated educational program for producers on the Northern Plains. *Journal of Extension* 45(3) <http://www.joe.org/2007june/rb3.shtml>.
- Prawl, W., Medlin, R., & Gross, J. (1984). Developing sound Extension Education Programs. In: *Adult and Continuing Education through the Cooperative Extension Service*, Chapter 5, pp. 61, 67-69.
- Rowe, S., Smith, R., Massey, J., & Hansen, E. (1999). A methodology for determining Extension constituent needs: A case analysis in the forest products industry. *Journal of Extension* 37(4) <http://www.joe.org/joe/1999august/rb4.html>

APPENDIX

Sample Pre-/Post-Workshop Evaluation Instrument

Beehive Master Beef Manager Program Heifer Selection & Development

Date: February 13, 2008

Location: Any County, U.S.A.

Directions: Read each of the statements and rank yourself at the present time. Next, think back to your understanding about each statement before attending this workshop. Circle the appropriate numbers using the following key:

- 1 = no understanding
- 2 = little understanding
- 3 = moderate understanding
- 4 = quite a bit of understanding
- 5 = almost complete understanding

How would you describe your understanding of the following:	My Understanding									
	Before Workshop					After Workshop				
	None	Little	Mod- erate	Quite a bit	Com- plete	None	Little	Mod- erate	Quite a bit	Com- plete
1. Developing a heifer selection system.	1	2	3	4	5	1	2	3	4	5
2. Impact of heifer development on profit.	1	2	3	4	5	1	2	3	4	5
3. Relationship of weight to puberty in heifers.	1	2	3	4	5	1	2	3	4	5
4. Feeding heifers to attain the optimal weight to ensure timely cycling and breeding.	1	2	3	4	5	1	2	3	4	5
5. Relationship of heifer nutrition to breeding capacity.	1	2	3	4	5	1	2	3	4	5
6. Relationship between pre-calving nutrition in first- and second-calf heifers and ability to breedback.	1	2	3	4	5	1	2	3	4	5
7. Relationship between late gestational nutrition of heifers and dystocia.	1	2	3	4	5	1	2	3	4	5
8. Impacts of late-calving heifers on cow herd fertility .	1	2	3	4	5	1	2	3	4	5

How will you use the information you have gained in this workshop in your management decisions?

Sample Annual Program Summary Mailed Survey Instrument

**Beehive Master Beef Manager [MBM] Program
2007-2008 Program Summary Evaluation
Any Counties, U.S.A.**



1. After participating in the MBM program this year, do you feel better able to identify and manage those risk factors taught during the management workshops at your location?

Yes No

2. After participating in the Right Risk™ computer simulation, do you now feel better able to make risk/benefit assessments when you are looking at changes in the way you manage your operation?

Yes No N/A

3. When you now make management decisions, do you find that you examine your decisions more closely relative to risk than you did before participating in the MBM program?

Yes No

4. Several areas were identified and addressed at the first session concerning topics to be discussed. Have your educational priorities changed as a result of your participation in the MBM program?

Yes [respond below] No

If so, what new or additional area(s) or topics do you now believe need to be discussed or addressed in future workshops?

5. What management changes have you made or other ways you have used the information you received through your participation in the MBM program?

(continued on back side of page)

6. Please rank the workshops you attended as to their value for you. (1=low value to 5=high value)

Session Attended	Value of session
Grazing Management & Forage Kochia	
Process Verification/Calving Season Management	
Heifer Selection & Development	
Mineral Supp./Feed Quality & Safety	

7. If you could change one thing about the Beehive Master Beef Manager workshops held at your location, what would that be?

8. Did you apply these best management practices in your business as a result of attending the MBM classes in your locale? *[check appropriate response]*

- | Yes | No | As a result of attending the MBM classes I... |
|-----------------------|-----------------------|---|
| <input type="radio"/> | <input type="radio"/> | ... planted or intend to plant forage kochia on my rangeland? |
| <input type="radio"/> | <input type="radio"/> | ... changed the way I monitor my grazing lands? |
| <input type="radio"/> | <input type="radio"/> | ... began documenting grazing management practices? |
| <input type="radio"/> | <input type="radio"/> | ... enrolled calves in a source and age verified program? |
| <input type="radio"/> | <input type="radio"/> | ... changed pre-calving management to improve colostrum quality? |
| <input type="radio"/> | <input type="radio"/> | ... changed calving management to decrease incidence of scours? |
| <input type="radio"/> | <input type="radio"/> | ... changed management of cows in different age classes to improve rebreeding capability? |
| <input type="radio"/> | <input type="radio"/> | ... developed/changed selection “system” for heifers? |
| <input type="radio"/> | <input type="radio"/> | ... changed how I develop retained heifers? |
| <input type="radio"/> | <input type="radio"/> | ... evaluated/changed mineral supplementation to improve production? |
| <input type="radio"/> | <input type="radio"/> | ... changed feed storage to maintain higher feed quality and make feed more biosecure? |

Funding for this program provided by a generous grant from:



Thank you for completing this survey.