

## Teaching Marketing and Management to an Extension Audience in an Inter-Disciplinary Setting

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### Abstract

This paper discusses how economists utilize an inter-disciplinary workshop to teach marketing and management concepts to beef cattle producers and beef industry advisors. Range and animal scientists along with economists teach concepts in the classroom and then demonstrate these concepts with hands-on field activities in an 8-day Ranch Practicum, spread over an 8-month period.

**Keywords:** inter-disciplinary, extension, marketing, management, financial, evaluation, testing

## **Introduction**

### **Problem**

Most extension offerings are discipline specific. Workshops that include multiple disciplines are often not integrated. Animal scientists, agronomists and economists offer independent views of a common theme. These independent offerings have at least two problems. One is attendance. Our experience has been that agricultural producers prefer to learn about production-oriented topics. They also like the hands-on approach. A much smaller population of producers is directly interested in management and marketing issues. Another problem with the independent approach is that most marketing and management issues are not discipline specific. Marketing of livestock, for example, has as many animal science problems as economic. The carrying capacity of range or pastureland is critical for financial decisions both from a cost of production and long-term size of operation viewpoints. While economists often know something about other disciplines, seldom do we know enough to truly help producers with production questions. The problems go the other way as well. Improving conception in a cow-calf herd has as many economic questions as it does physiological. Recommending range improvements without understanding the economics may lead to poor and costly decisions.

### **Objectives of the paper:**

The major objective of this paper is to describe a discipline-integrated workshop conducted in Nebraska that addresses the problems discussed above. The paper will first describe the workshop and then end with a discussion of some of the evaluation methods and results.

## **The Nebraska Ranch Practicum**

The Nebraska Ranch Practicum was established in 1999 to integrate information for producers and agricultural educators/consultants into a framework for decision-making. The Practicum's main objective is to strengthen the profitability and sustainability of range-beef cattle operations by providing information and experience to improve decision-making. Cow-calf producers, veterinarians, extension educators, natural resource agency personnel, and other advisors to the industry are all part of the targeted audience. Specific objectives are: 1) improve decision-making skills needed to manage more efficiently; 2) enhance stewardship of natural resources; 3) improve skills in critical evaluation of alternative production enterprises; and 4) enhance ranch sustainability.

### **Methods**

To achieve these objectives a team made up of two economists, two range scientists, one animal scientist, and two extension educators (both primarily beef cattle orientation) developed concepts and teaching materials during 1998. The first Practicum was offered and taught beginning in June of 1999. The team goal was to integrate the three disciplines as much as possible for teaching and demonstrating concepts. The role of the extension educators is crucial. They are the coordinators and promoters and they handle some of the follow-up with individual producers. In addition they are the ears of "practicality" for an integrated workshop that begins by meeting first in June of one year and finishing in January of the following year.

We meet with class participants eight (originally seven) full days over that time period. Six of the eight days are covered in three two-day sessions, one at the beginning, one about mid-way and one at the end. Pre and post-tests are administered to help determine knowledge gains and to adjust teaching to student knowledge levels.

Students are exposed to concepts in a classroom setting and then those concepts are demonstrated via ongoing research and planned demonstrations in the field. Most of the field study is located at the University of Nebraska's Gudmundsen Sandhills Laboratory (GSL) located near Whitman, Nebraska in the heart of the Nebraska Sandhills. Classroom teaching takes place at GSL and at the University's West Central Research and Extension Center in North Platte. Homework is given to reinforce some of the concepts taught. The format fits the range and livestock specialists much better than economists. However, economists are involved in some of the ongoing research that is used in the Practicum, which makes it much easier to discuss and demonstrate the salient economic points jointly with the other scientists. In addition economists integrate management and marketing concepts for the appropriate time of year and for the biological and physical processes taught by the range and animal scientists.

The registration fee for the program is \$600/participant. Full and partial scholarships for producers who may be unable to afford the fee have been funded by Natural Resource Districts (Soil Conservation Districts in many states), USDA's Natural Resources Conservation Service (NRCS) through their EQIP program, and local grazing groups e.g. Sandhills Task Force. Academic credit for the Practicum is also available through the University of Nebraska system. If participants wish to take the workshop for credit, they must pay relevant tuition fees in addition to the course registration fee. The registration fee covers the main out-of-pocket costs of the Practicum. Those major costs are for food (8 lunches, 2 dinners, and breaks), classroom and field notebooks including contents, marketing and some travel for the instructors.

Promotion and marketing of the workshop require considerable effort. Direct mailing to cattle producers throughout Nebraska is one method used to recruit students. We have a mailing list of about 800 ranch and farm operations. We do not feel that direct mailings have been

particularly effective for recruiting, but they are an effective way of creating an awareness of the University to a broad group of producers. The latter is important especially in an era of tight dollars from state governments. We also use traditional news articles, radio and television to help with the promotion and recruitment. Direct contact of potential participants has been the most effective tool for recruiting participants. Extension educators are a key link in that process by making personal contacts with clientele. Word of mouth from those who have been through the Practicum has also been effective. For example, at least two ranches have enrolled family or employees from their operations for three of the four (counting the one now underway) Practicums. Natural resources organizations and government have also been helpful recruiters.

**Economic content:** The main topics covered by the two economists are shown in Table 1. The time estimates are based on experience from the actual time used to cover the topics. In this format economists have about 15 total direct contact hours with participants. Other time is spent interacting when in the field discussing some of the range and livestock research and demonstrations. Some of the topics covered in the discussions changes from year to year as the research projects at GSL change.

Many other economic topics could be covered, but we have found these to be of interest and use to the participants. In addition these topics fit well with the production oriented teaching of the range and animal science faculty.

## **Results**

About 120 individuals have participated over four years of the Practicum. The participants have traveled from as far as eastern Utah and western Wyoming. Eighty percent of those attending have been ranch/farm owners, operators, and spouses. The other 15 percent is split between Extension educators and specialists using this as in-service training, cattle industry consultants,

natural resource managers (Nature Conservancy and Natural Resource District employees, for example), and veterinarians. Collectively, participants either owned or managed nearly 1 million acres of upland range and an additional 78,000 acres of sub-irrigated meadows. They also collectively owned or managed 153,000 beef cows, over 276,500 feeder calves and 278,000 yearlings. Participants estimated that they will in turn collectively impact an additional 1690 people, over 3.5 million acres and over 1 million head of cattle through their work and contacts with others.

**Table 1. Economic topics for the Nebraska Ranch Practicum**

<b>Session &amp; Month</b>	<b>Topic / Concept</b>	<b>Location</b>	<b>Time allotted</b>
1 June	Financial record keeping principals	Classroom	1 hr.
	Introduction to marketing/hedging	Classroom	1.5 hr.
2 June	Introduction to Standardized Performance Analysis (SPA) for cow-calf production (homework)	Classroom	.75-1 hr.
3 July	Review homework on SPA and discuss economics of calving seasons	Classroom/field	.5 hrs
4 September	Cull cow marketing	Classroom	2 hrs
	Economics of weaning systems	Field	.5 hrs
5 September	Financial Statements (homework)	Classroom	1 hr
	Hedging and options	Classroom	2 hr
6 November	Review homework on Financial Statements	Classroom	.5 hrs
	Marketing concepts and outlook. Valuing replacement heifers.	Classroom	1.5 hrs.
7 January	Economics of harvest date and fertilizer on meadows	Classroom/field	.5 hrs.
	Fencing and water development costs	Classroom/field	.5 hrs.
	Market review and outlook	Classroom	1 hr
8 January	Estimating costs of production	Classroom	1.5 hrs

**Pre and Post tests.** A written test is administered to all participants at the start of the Practicum. The identical test is administered again on the last afternoon of the final day. Instructors examine the results of the pre-test to see if there are areas that need more emphasis than others. Comparisons of the pre- and post- test scores are one form of evaluation for effectiveness of teaching and learning. The test includes 10 questions related to economic issues. These questions are either true/false or fill in the blank. The “fill in the blank” usually ask the participant to calculate the answer from information provided e.g. the expected net sale price from a hedged situation. The percent of participants who answered a question correctly improved between the pre-and post- tests. Improvement for individual questions over the three years ranged between 3% and 27% percentage point. However, there were some years when the post-test scores for individual questions actually declined compared to the pre-test. One question that was consistently missed in all three years dealt with figuring “owner equity” based on information provided for asset and liability values. Participants improved between pre- and post-tests but still only about 1/3 answered this question correctly in the final test. Another question that was consistently missed asked participants to calculate net price per cwt when cattle are sold with a price slide such as at a video auction or a contract for future delivery. Both of these questions seem fundamental to any ranching operation so it was surprising that the participants did poorly both before and after the Practicum material was covered. The range and animal scientists asked about 20 questions, several of which were multi-part. Improvements in the numbers who answered their questions correctly were more dramatic than for the economists. One reason for that seems to be repetition. For example, pastures that are subjected to different grazing pressure and frequency are viewed multiple times during the 8 months of the Practicum.

Questions about defoliation and its impacts on plants are addressed in each of these multiple sessions. Milk production from cows is actually measured during several of the Practicum sessions so the answers to questions concerning how to manage milk production are covered in detail each time. The economic issues, while timely with the seasons, generally are not repeated through the year. Some accounting and marketing concepts are dealt with twice. That may be something that we need to consider changing as we continue to fine-tune the Practicum.

**Practicum evaluation.** The last day of class (in January) participants are given an evaluation form. That form contains 17 questions or sections for answers and comments. A copy of the evaluation form is attached as an appendix to this paper. The first five questions concern the attendance at the Practicum and the numbers of cattle and acres of land that are directly and indirectly influenced by the participants. The other questions asked are quite varied from rating knowledge gained on a scale of 1 to 3 to asking about dollar improvements in the bottom line. The question concerning dollars was added primarily due to the pressures from administrators to estimate dollar impacts of programs. Not surprisingly, we found the question about cost savings or improvement in profit to be difficult for participants to answer. The question is relevant only to those who are producers. Even so only about one-third of those completing the evaluation, completed that question. Those answering over the three years estimated a total savings of about \$27/cow from knowledge gained from the Practicum. A more realistic assessment of dollar impact could be made by surveying participants a year or more after the Practicum to determine if they had made changes (or not made costly changes) as a result of the Practicum. We have plans to do such a survey this year. We are planning an “alumni” day for the first three classes and plan to develop an evaluation survey to be distributed prior to their attendance that day. The goal is to have them return the completed survey when they attend the alumni day. If they cannot



attend we will encourage them to return it via mail. It remains to be seen whether or not that will be a successful approach.

Questions that asked participants to rank knowledge gained in some qualitative manner were easier for the participants to answer and did provide the instructors useful information. For example, question 8 inquired about knowledge gained in various areas. For the three completed years of the Practicum 50% or more of those completing the evaluation (69) felt that they had received “new” information on topics that exclusively or partially dealt with economic issues with the exception of cull cow marketing where 45% indicated they had received new information. Less than 10% of the evaluators believed that “nothing new” was presented for any of the economic topics. “New information” responses ranged from a high of 75% to a low of 35% and responses of “nothing new” ranged from zero to 13% for the non-economic topics. The encouraging part of the evaluation for economists was that only one written comment suggested decreasing the emphasis on economic topics while 7 suggested increasing, when participants were asked to make suggestions for improvement. A total of 58 comments were made for the three years many of which suggested improvements in methods rather than content or were complimentary of the current format.

### **Advantages/disadvantages for teaching economic and management concepts**

Without question the advantages outweigh the disadvantages. First we will focus on the disadvantages since they are few. All of the instructors could use more time. To do an in-depth training on marketing for example would require three to five days alone. An in-depth training on electronic record keeping could easily occupy two days. So the complexity of some of the economic/management issues is such that this setting cannot do more than create basic awareness and hopefully whet the participants’ appetites for additional education. Another

disadvantage is the difficulty of having a “hands-on” experience for the participants that matches those from the other production specialists. It is difficult to compete with body condition scoring cows by sight and by feel and directly observing the impacts of different defoliation frequencies and timing on grass. Given the number of topics to be covered there is not enough time to train participants to use a computerized financial program for example, which would be a “hands on” experience. The use of homework compensates for the learning, but does not provide the same hands-on experience. Some of the topics covered by the other scientists do not lend themselves to direct economic discussion. For example, considerable time is spent on plant identification. There may be economic issues in the long run as producers become better at monitoring their pastures but those issues are very obscure at best.

The advantages far outweigh the above disadvantages. We are presenting economic and management concepts to an interested and very interactive audience. The other disciplines help foster that interaction by their teaching methods, field demonstrations and hands on education. Participants quickly become accustomed to asking questions and challenging the instructors since the topics covered by the range and animal scientists are ones with which the participants are more familiar. By the time the economists interact the participants are ready to ask the questions “no one wants to ask.”

A major advantage from an economic instructor’s viewpoint is having the other disciplines in the classroom when the economic topics are covered and vice-versa. Participant questions do not always follow discipline lines (we encourage them not to). While economists know a few things about the other disciplines, there is much that we do not know. For example, when we discuss valuing a replacement female, questions often arise about the assumed rations and feeding regimes, heifer selection, etc. The animal scientist can quickly deal with those

questions. Discussions by range scientists of meadow grazing and haying invariably involve questions about costs and effectiveness of fertilization and other improvements. Economists answer those questions at the time and are thus more effective than if covered in a completely separate session. Cull cow marketing discussion also elicits questions that are better answered by animal scientists than economists.

Participants who pay \$600 to attend workshops seem more attentive and dedicated to learning. That is an advantage for all disciplines. One year NRCS through EQIP contracts paid the entire enrollment fee for several participants. Those participants in general were not as attentive and did not make the effort to attend all classes. That may have been an aberration; however, we concluded that participants should have at least some of their own dollar resources committed to be totally serious about the workshops. That aberration aside the participants are enthused and attentive. The different instructors, settings and topics energize participants. Mixing classroom with outdoor learning experiences keeps the participants focused and interested.

Another major advantage of the Practicum format is the opportunity to discuss interdisciplinary research results and ongoing projects. This of course is only possible since that type of research is routinely conducted at GSL. One of our research projects has compared March to June calving. The production and economic impacts and implications of that work have been analyzed. Participants are shown the two herds and the animal and range scientists and economists all have the opportunity to discuss the strengths and weaknesses of both systems. This discussion usually takes place on a trailer surrounded by cows. Participants observe cows in the two systems at different times of the year. They not only hear the results but also see so they

can directly relate to what they are hearing. Similar discussions occur with range and meadow research.

One important advantage of this setting is that it is fun for the instructors. None of the instructors spend an entire day of presenting and interacting. All instructors are usually in attendance each day. We become participants when others are teaching. As a result we each learn more about the other disciplines. This learning is not only helpful to our individual teaching but it also helps in our research. The economic research with other disciplines is much more effective when we have some basic understanding of the concepts in animal and range science. The multi-disciplinary understanding makes it easier to see which production variables have economic impacts and then determine how to measure those impacts. For example, body condition score (BCS) is a focal point of the animal science teaching. By understanding that concept we realize that it does not have any economic meaning in and of itself. But it can be an indicator of important economic impacts e.g. pregnancy success and need for feed inputs.

Interaction between participants as well as with the instructors is another strong point of the format. Meals and breaks offer informal venues for such interaction, and it does occur. The extended time frame (June through January) provides participants several opportunities to get to know each other and make contacts that continue well after the Practicum is finished.

Have we achieved our goal of integrating the disciplines? Participant comments on the evaluations indicate that we have been at least partially successful in that aspect. The integration occurs two ways. One is in classroom discussions such as discussed above when questions on a topic bring in disciplines other than the one leading the discussion at the time. Secondly, integration occurs due to the research that occurs at GSL. This setting may not be available to other states but we are aware of several that have the opportunity. The inter-disciplinary research is one of

the keys to the success of the Practicum. Integration is not perfect and it is something that we continue to fine tune. We do get better at it as we gain experience working as a team.

### **Summary**

The Nebraska Ranch Practicum is a multi-disciplinary, multi-day workshop conducted for participants with interest in beef cattle and range/pasture. The enrollment in the Practicum is limited to 30 to 35 participants. We have been successful in enrolling about 120 participants over the four years of the Practicum's existence. Results from pre- and post-tests indicate that participants have gained in their decision-making skills. Evaluations administered at the end of the 8-day workshop indicate that participants plan to make changes that they believe will enhance the sustainability and profitability of their operations. Participants who are not producers indicate that they have learned skills to help them perform their jobs more effectively. As instructors we believe the Practicum has been successful. We do need to do a follow-up survey to better evaluate impact.

Appendix 1. Condensed Nebraska Ranch Practicum Evaluation

Your responses to this evaluation are completely confidential

1.) Please circle which Practicum sessions you attended.  
 June 6, 2002                      June 7, 2002                      July 16, 2002                      September 4, 2002

September 5, 2002              November 12, 2002              January 8, 2003              January 9, 2002  
 2.) How many acres do you own or manage?

Upland Range \_\_\_\_\_ ac.    Meadows \_\_\_\_\_ ac.    Other hayland/cropland \_\_\_\_\_ ac.

3.) How many beef animals do you own or manage?  
 Number of beef cows \_\_\_\_\_              Number of feeder calves \_\_\_\_\_

Number of yearlings \_\_\_\_\_  
 4.) How many cull cows do you market annually? \_\_\_\_\_

5.) In addition to the above numbers, how many people, acres and head of cattle will be effected by the knowledge and skills you gained at the Practicum as a result of visiting or working with neighbors, friends and family or during consulting and advisory work activities?  
 People \_\_\_\_\_                      Acres \_\_\_\_\_                      Head of cattle \_\_\_\_\_

**Please Evaluate the Practicum by Circling the Appropriate Number:**

6.) **Overall quality of program and logistics**

	Poor	Fair	Good	Excellent
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Quality of teaching materials	1	2	3	4
Preparation and knowledge of teachers	1	2	3	4
Relevance of topics to you	1	2	3	4
Field exercises and demonstrations	1	2	3	4
Suitability of practicum dates	1	2	3	4
Quality of meals	1	2	3	4
Overall, satisfaction with the practicum	1	2	3	4

7.) How Did You Benefit From the Practicum?

Definitely not	Probably not	Yes, probably	Yes, definitely
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The profitability of my operation will increase

1 2 3 4

The sustainability of my operation will improve

1 2 3 4

I will be a better steward of natural resources

1 2 3 4

New or improved decision-making skills will help me manage more effectively

1 2 3 4

My ability to critically evaluate management alternatives has improved

1 2 3 4

8.) Knowledge Gained From the Practicum...

Nothing new presented	Reinforced what I already knew	Gave me new information
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Body condition scoring

1 2 3

Stocking rates

1 2 3

Marketing cull cows

1 2 3

Grazing strategies

1 2 3

Accrual adjusted income statements

1 2 3

Wildlife habitat evaluation

1 2 3

Supplementing minerals

1 2 3

Plant identification

1 2 3

Adjusting cow inventory numbers

1 2 3

Estimating the value of a heifer

1 2 3

Livestock use of key plant species

1 2 3

Meadow fertilization

1 2 3

Nutrient requirements of beef cows	1	2	3
Meadow grazing management	1	2	3
Relationship between costs, forage quality and physiological stage of the cow	1	2	3
Meadow haying and hay quality	1	2	3
Range condition assessment	1	2	3
Plant growth and development	1	2	3
Hay sampling	1	2	3
Weaning management	1	2	3

9.) **Ranch Practicum Skills/Decisions**

	Before the practicum, I did					After the practicum, I will				
	Does not apply	Seldom	About half the time	Often	Almost always	Does not apply	Seldom	About half the time	Often	Almost always
Monitor Nutrient Status of Beef Cow	1	2	3	4	5	1	2	3	4	5
Monitor Upland Range Resources	1	2	3	4	5	1	2	3	4	5
Monitor Meadow Resources	1	2	3	4	5	1	2	3	4	5
Estimate accrual adjusted income	1	2	3	4	5	1	2	3	4	5
Track inventory changes for livestock & feed	1	2	3	4	5	1	2	3	4	5
Sell cull cows soon after pregnancy checking	1	2	3	4	5	1	2	3	4	5

10.) Indicate the level at which the materials and information were presented with percentages that equal 100%.

too simple \_\_\_\_\_%                      about right \_\_\_\_\_%                      too advanced \_\_\_\_\_%

11.) How has your ability to monitor vegetation and livestock changed or improved?



12.) What changes have you made or will you make in monitoring plant and animal cycles or how will concepts of monitoring plant and animal cycles affect the services or products you provide to others?

13.) Will you make any other management changes as a result of taking the course?

a. \_\_\_ Definitely not      b. \_\_\_ Probably not      c. \_\_\_ Yes, probably      d. \_\_\_ Yes, definitely

If you answered yes, please tell us what changes you are going to make:

14.) In terms of dollars per head, please estimate how much this course will help you?  
(this could be savings and/or extra profit) (\_\_\_ Check here if not applicable)

a. \_\_\_ Less than \$1 per head                      b. \_\_\_ \$1-\$10 per head                      c. \_\_\_ \$11-\$25 per head  
d. \_\_\_ \$25-\$50 per head                      e. \_\_\_ \$51-\$75 per head                      f. \_\_\_ More than \$75 per head

15.) Were the resources you invested in the Practicum a good investment?  
Explain.....

16.) Your comments will help us improve the Nebraska Ranch Practicum. Please share any thoughts or suggestions you have about the Practicum, or describe how you have gained or profited from it and how we can improve the value of education for future participants. Should we continue offering the Practicum?

17.) Given the opportunity, would you like to attend one or more of the dates in future Practicums for review?  
Your responses to this evaluation are completely confidential.

\_\_\_\_\_  
Signature  
(Your signature is optional)

**Thank you for taking time to complete this evaluation AND thank you for being a great participant.**