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A Promising New Role for Extension Educators in a Dynamic Industry: The Cow Sense Project

Abstract

The environment for Extension is rapidly changing, but new opportunities are emerging. Extension can play a unique and important role in helping managers learn to consistently apply technical knowledge throughout their organizations. "Cow Sense" is a successful program that can serve as a model for progressive programming that combines technical knowledge with organizational development.

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Introduction

Extension is in a critical time in its history. David King and Michael Boehlje clearly pointed this out in their *Journal of Extension* Commentary about Extension "on the brink of extinction or distinction" (2000). Traditionally, especially in agriculture, Extension educators taught technical concepts directly to an audience of farm managers. In the days when Extension was the only provider of this type of information, it was an effective model. Today, Extension faces direct competition from private sector sources that provide specific and timely technical information. Extension must find new, more progressive models for serving the needs of rapidly evolving industries in order to stand on the brink of distinction.

In the traditional model, teaching technical concepts directly to the farm manager was an effective method because the farm manager was also the principal source of farm labor. Private sector information providers continue to reflect this model because their educational efforts are focused on the manager and his or her authority to make purchasing decisions. Farm managers are left with the organizational challenge of disseminating technical knowledge throughout their workforce.

Consistent and through application of technology requires a systematic approach to workforce organization and training, an approach that is quite unfamiliar to most farm managers. Herein lies a unique opportunity for Extension educators to distinguish their role from that of private sector information sources. Extension can develop programs that combine technical knowledge with organizational development training. Such programming equips managers with the tools necessary for consistent and sustainable adoption of technology.

Pennsylvania's successful Cow Sense program demonstrated this model of programming for a particular need in the dairy industry. The concept, however, applies to all Extension educators who find themselves working in a rapidly changing industry and faced with competition from other technical information providers. Here is what we did and how it worked.

Structural Change Brings New Challenges

Structural change in the dairy industry, as with much of agriculture, has led to fewer and larger farms that employ more people. As farms employ more people, two of the principal challenges dairy managers face are maintaining consistency in work performance and implementing change throughout the organization. Technical knowledge is useless if it cannot be consistently applied throughout an organization.

As dairy farms increasingly hire non-family workers, the background and experience of the typical employee is changing. Many of today's dairy workers do not have experience with livestock. All skills that a successful dairy worker needs are not straightforward or easy to acquire. As a result, dairy farm managers must provide training for new employees to ensure that they have adequate technical knowledge. "Cow sense" is a particular type of technical knowledge.

Cow Sense Workshop

"Cow sense" is a term used to describe a person who understands cow behavior and can inherently detect cow health problems. Most people obtain their "cow sense" through behavior observation over time working with cows. In many cases, the ability to quickly and accurately identify and take action with sick cows can make the difference between rapid recovery and profitability or disease and economic loss. In this regard, "cow sense" is a very important skill for dairy farm employees to possess. This skill is too important to wait for the slow and unpredictable process of experience to teach it.

The Cow Sense Workshop was developed to address the difficulty managers have in passing on "cow sense" to employees. Unlike physical farm tasks that may be easily explained and demonstrated to employees, "cow sense" is an observational and interpretive ability that is much less demonstrable. The Cow Sense Workshop approached this difficulty with two specific objectives:

1. Teach a systematic approach to detecting problem cows.
2. Provide training materials and methods that will enable managers and Extension agents to teach "cow sense" to employees.

Teaching Plan

Table 1 lists each session contained in the Cow Sense Workshop, the time allotted for each session, group size, and type of format used for training. The first and last session departed from the technical aspects of cow sense and addressed organizational development topics. The first session, "Recognizing and Managing Dairy Systems," emphasized systematic management and decision-making, as opposed to the more haphazard approach that often takes place on dairy farms. The last session, "Sharing What You've Learned," followed up on the systems theme inherent to all of Cow Sense by detailing a systematic approach to training.

The core of the Cow Sense Workshop was purposely organized into five interactive sessions that addressed four key components of learning cow sense. These four components were:

1. Understanding cow health issues;
2. Body condition scoring, a key health indicator;
3. Observational skills; and
4. Physical examination skills.

Table 1.
Cow Sense Workshop Sessions

Session Title	Time	Group Size	Format
Recognizing and Managing Dairy Systems	30 minutes	20-30	PowerPoint presentation
The Transition Cow Challenge	30 minutes	20-30	PowerPoint presentation

Body Condition Scoring	30 minutes	20-30	Live animal demonstration
Observing Dry and Pre-fresh cows	30 minutes	20-30	Live animal demonstration
Systematic Examination	2 hours	5 or less	Live animal, hands-on practice
Observing Fresh Cows Through Day 40	30 minutes	20-30	Live animal demonstration
Sharing what you've learned	30 minutes	20-30	PowerPoint presentation

Each of the four cow sense components was further reduced into specific teachable concepts. In this manner, the body of diagnostic skills necessary to evaluate cow health was condensed into a systematic model to facilitate the learning process. In the examination component, for example, participants were instructed on how to properly use a stethoscope to determine breathing rate and pattern. Veterinary instructors provided descriptive and written criteria for determining normal and abnormal situations and need for intervention.

The Transition Cow Challenge

Understanding why one needs to learn a new skill is an important part of the teaching process. We selected cows in the transition period, defined as cows from 3 weeks before to 40 days after calving, as our focus for teaching, because they are the most likely group on the farm to develop disease. Thus, they are the most profitable group for dairy workers to observe using their "cow sense." This component of Cow Sense presented scientific background to the physiological changes that take place in transition cows, which accounts for the greater susceptibility to metabolic and infectious disease. In understanding the associated health concerns, the participants were better able to relate the skills being taught to their role in maintaining cow health.

Body Condition Scoring as a Key Health Indicator

The role of body condition, defined as the amount of body fat a cow carries, was emphasized in the previous session relative to cow health. A previously published systematic methodology to determine a cow's body condition score was demonstrated to show how easily a procedure could be taught (Ferguson, Galligan, & Thomsen, 1994). The systematic approach enabled Cow Sense instructors to effectively teach a diverse group of people to accurately body score cows to within an acceptable degree of accuracy in less than 30 minutes. Emphasis was made on how determining body condition score was important to monitoring cow health.

Systematic Observation

A dairy farm worker with cow sense can distinguish an abnormal cow from a group of normal animals. This is the fundamental skill that participants learned in two sessions of the Cow Sense workshop: "Observing Dry and Pre-fresh cows" and "Observing Fresh Cows Through Day 40." Program developers identified easily observable animal descriptors and provided information about what constitutes normal or abnormal for each descriptor.

The result was a simple, organized resource known as the OBSERVED chart that managers learned and could use to teach others. Students received the OBSERVED chart in a durable, laminated form. Each letter in OBSERVED stands for a discrete descriptor, thus the user may assess each descriptor in order to complete a systematic observational evaluation in a consistent and repeatable manner. The chart also includes more detailed comments and information about potential causes of abnormal symptoms.

Systematic Examination

After a potential problem cow is identified, there is need for a specific and organized examination routine that leads to predictable results such as treatment or a call for veterinary assistance. In order to teach proper examination techniques, groups of five or fewer students were assigned to a veterinary instructor for hands-on practice. Each student had an opportunity to practice his or her examination technique under the supervision of the veterinarian. Interestingly, we found that groups of more than five students per veterinarian tended to discourage participation by some students, while groups of five or less led to practice by all students.

A comprehensive, systematic chart, INSPECT HER CAREFULLY, was developed to facilitate learning of a basic physical exam process. Again, each letter in this chart stands for a discrete descriptor that workers can assess as normal or abnormal. It is beyond the scope of this article to include the two charts mentioned here, but they can be found in Adobe Acrobat form on the Dairy Alliance Web site at <http://www.dairyalliance.org/hrmngmt/workforcedev/wdindex.shtml>.

The Cow Sense program's aim was not to have farm workers make veterinary decisions, but to improve animal health through early disease recognition. Cooperating local veterinarians were provided with learning materials in advance and briefed about expected learning outcomes. They were comfortable with this learning process and did not feel threatened by it. One participating veterinarian indicated that his clients' ability to communicate effectively with him has improved dramatically since they attended Cow Sense.

Evaluation Results

Cow Sense participants were asked to evaluate each segment of the workshop. We wanted to assess more than just perception of the workshop quality. We were interested in how the participants would use the information in the future for training or management purposes. Participants were asked to indicate all answers that applied to them. Table 1 contains the combined responses from three different sessions of Cow Sense where an identical evaluation instrument was used.

It is important to note that almost all components of Cow Sense were said to have "increased knowledge" of greater than 50% of the participants. This is remarkably high, given the audience contained a blend of dairy industry personnel, many of whom were quite skilled, high-level dairy managers and Extension agents. The large percentage of participants who marked "increased knowledge" indicates a great need to teach basic cow health skills such as those used in the hands-on examination portion of the workshop. In addition, a high number of participants, 22 to 28%, indicated they would use their new knowledge to "train others." This too, would suggest a strong need for this type of material.

Table 2.
Cow Sense Participant Responses (n=42)

Session	Train Others	Management Change	Increased Knowledge	Already Knew	Wasn't Useful	No Response
Recognizing and Managing Dairy Systems	24.53%	9.43%	58.49%	7.55%	0.00%	0.00%
The Transition Cow Challenge	24.07%	14.81%	55.56%	5.56%	0.00%	0.00%
Using Body Condition Scoring as a Management Tool	26.79%	12.50%	57.14%	3.57%	0.00%	0.00%
Detecting Problem Cows in the Pre-fresh Group	21.82%	16.36%	45.45%	16.36%	0.00%	0.00%
Hands-on examination techniques in small groups	28.33%	6.67%	58.33%	6.67%	0.00%	0.00%
Detecting problem cows in the lactating group up to 40 days after freshening	27.59%	12.07%	50.00%	10.34%	0.00%	0.00%

In many cases, dairy managers take on training responsibilities without benefit of prior experience or education in this area. Cow Sense was designed to provide participants with training materials and methods that they could use to teach others in their organizations.

Participants learned organizational skills such as how to define specific work systems and tasks that make a dairy farm function. Once systems and tasks are defined and understood, managers can design useful training programs that meet the needs of individual workers. Cow Sense participants were encouraged to use program materials as an example of reducing a complex job ability to understandable, and thus, learnable pieces.

Research shows that adults have a strong need to understand why they should learn a new skill (Knowles, 1996). To accommodate this need, all presenters related educational content to the goals of a dairy farm business and the practical needs of dairy workers. In addition, adults learn best when instruction is task-centered. Cow Sense developers made a concerted effort to emphasize hands-on learning and to conduct training in settings that closely resemble the workplace.

Applications for Extension Educators

Training skills that dairy managers require are similar to those used professionally by effective Extension educators. Dairy managers need to reduce complex skills and concepts to easily learnable pieces. They need to help learners to understand why it is important for them to acquire new skills and understand new concepts. They need to organize and present the information in a way that captures and maintains the learners' interest, accommodates the learning needs of individuals, and ultimately leads to content mastery. Finally, they need to follow up on initial training with coaching and feedback to ensure that behavioral change has occurred.

The "cow sense approach" can be used in a variety of different ways. Extension educators may follow the path we used in Pennsylvania to teach dairy farm managers how to effectively train their employees to have "cow sense." They can hold a farm-based workshop and employ a combination of lecture and hands-on activities to teach the desired concepts and skills.

Dairy managers can, of course, use the material to teach their employees. Or, in certain situations, an Extension educator may work with a dairy manager directly. The educator might assist the manager to develop his/her own "cow sense" curriculum customized to the particular dairy operation. This format allows the dairy workers to develop their animal skills, while the dairy manager acquires new skills as a trainer.

Conclusions

It's a cliché to say that we live in rapidly changing times, but it is the truth. The responsibilities of dairy managers are now very different, and the relationship that Extension once had with them is similarly changed. Extension educators need not abandon their role as providers of technical knowledge, but the reality is that others now play a part in this. Farm managers have a pressing need for training in organizational skills that lead to consistent application of technical knowledge. Extension professionals can play an important role in meeting this need. The Cow Sense Workshop is a model for just such an effort.

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