Farm Animal Audits: Meat Processors

Temple Grandin, Ph. D.

Animals in the Food System Conference
Kellogg Biological Station
Hickory Corners, Michigan
November 2-4, 2004

C.S. Mott Group for Sustainable Food Systems
Michigan State University
312 Natural Resources Building
East Lansing, MI 48824-1222

Farm Animal Audits: Meat Processors
Temple Grandin, Ph. D.

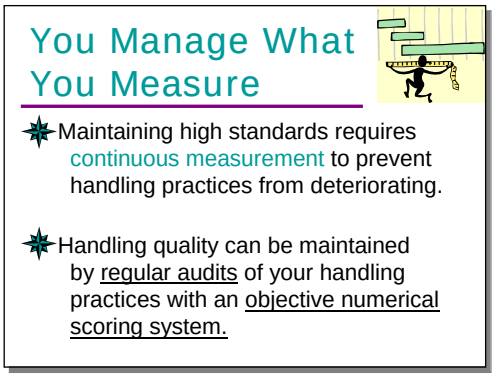
Abstract

Auditing allows people to measure processes for use in management assessment. This allows people to maintain high standards in animal processing facilities. A good auditing system is specific with clearly written standards. Critical control points (CCP) are scored. CCPs are items that have to be passed in order to pass an audit. A good CCP will measure a multitude of problems. Scoring should be simple and straightforward. This provides inter-observer reliability between auditors. Scoring is performed on 100 animals in large plants, or for one hour in small plants. In animal welfare auditing there are certain things that are very important to audit and if failed, the audit should also fail. Scoring allows managers to know where a problem is being demonstrated and troubleshooting can begin there. Scoring trends will indicate where improvements are being made and when old habits are returning to the handlers. Scoring may also be used to identify hard-to-handle animals; on farms and ranches to evaluate handling techniques; and at dairy production facilities. It is an auditor's job to identify welfare problems and the job of a manager to solve it.

Editors Note:
This document contains the Powerpoint slides used by the presenter. If you wish to make this document larger on your computer screen to better view the slide detail, you may change the magnification by selecting the View menu, and then Zoom To. Select or type in your desired magnification and then select OK.

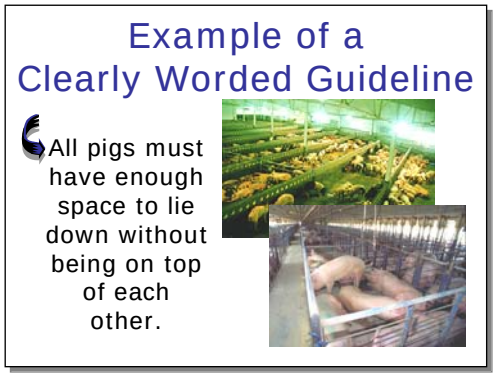
I have been building cattle handling facilities for 25 to 30 years. One of my big frustrations is that some of my clients would buy the nice equipment but they didn't always manage it right. I would go to start-up and get them handling the cattle really nice. Then I would come back a year later and they had slowly slid back into bad practices. The problem is that people can slide back into bad practices and not even realize that they have done this. I call this bad becoming normal.

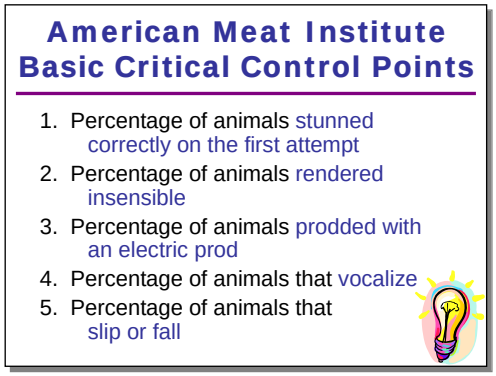
You manage what you measure. One of the ways to prevent handling practices from slipping back to bad is to actually measure them with an auditing system. If you measure something, then you can tell if something is sliding back to bad. For the American Meat Institute I developed a really simple, objective, numerical scoring system for measuring stunning and handling at the meat packing plants.



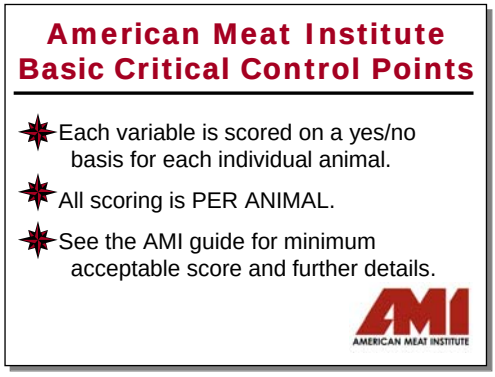
A good auditing system must not be vague. One of my big concerns, and one of the things that makes me really crazy, especially when I read a lot of guidelines from the government and Europe, is they have these three horrible words: properly, adequate and sufficient. What do these words mean? What is proper to one person might be torture to somebody else. A guideline has to have clearly written standards.

This is an example of a clearly worded guideline: All the pigs have to have enough space to lie down without being on top of each other. That is much clearer than saying give the pig's adequate space, whatever that means.

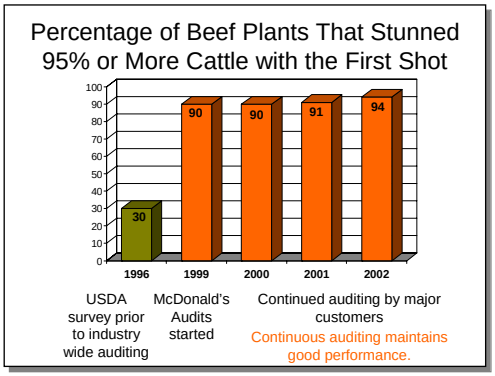




Five basic critical control points are measured in the American Meat Institute scoring system. You measure the percentage of animals that are stunned on the first attempt. Not all animals need to be immediately restunned. You measure the percentage rendered insensible, percentage that you poked with an electric prod, the percentage that vocalize (moo, bellow or squeal) during handling, and the percentage that slip and fall. These are things that you have to pass in order to pass an audit. Also, there are many different things that can cause a high percentage of animals that are prodded with an electric prod. It can be poor training or it can be a problem with the facilities. A good critical control point will measure a multitude of problems.

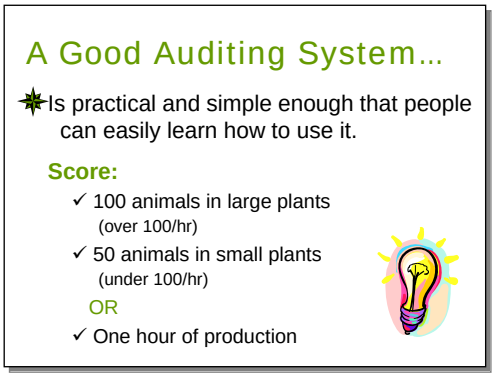


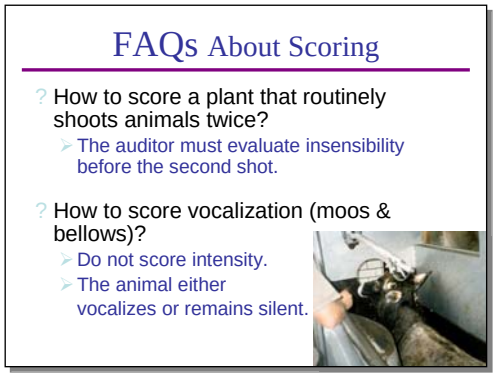
I would like to very quickly go through how the scoring works. One thing that I learned when training auditors out in the field is that the scoring has to be simple. If it is not simple you do not get any inter-observer reliability between auditors unless you get super highly trained people. What has happened in the meat packing plants is that the people already out in the field doing the food safety audits, for companies like McDonalds and Wendy's, are the same people that are doing animal welfare audits. So it is very simple scoring. As each beef animal goes through the plants, you check off "Was he stunned on the first shot?" Yes or No. You check it off. "Did he moo?" Yes or no. It's really simple.



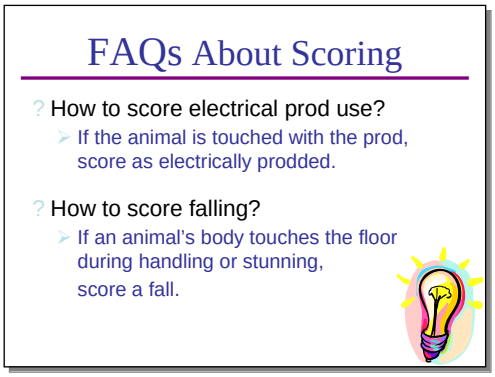
This auditing system has generated tremendous improvements in the meat industry. In 1996 I did a survey for the U.S. Department of Agriculture and the results were terrible. Only 30% of the plants could shoot 95% of the cattle on the first shot. Some of the plants were using electric prods on 100% of the animals. In some places you had 35% of the cattle mooing and bellowing. Then in 1999 McDonalds, very shortly followed by Wendy's, started auditing plants using the five critical control points. (I want to emphasize that Wendy's has one of the best auditing systems in the industry right now.) Today 90% of the plants are passing. I don't have the data on this slide for last year but it has been maintained. I saw more change happen in 1999 than I have seen in my whole entire career. This is why I call it the software installation for my hardware, because I have observed over the years that people are often much more willing to buy the new thing, like a cattle handling facility, computer system or new drug, rather than just working on basic management. I sell twice as many corral design books as I sell videos on how to handle cattle.

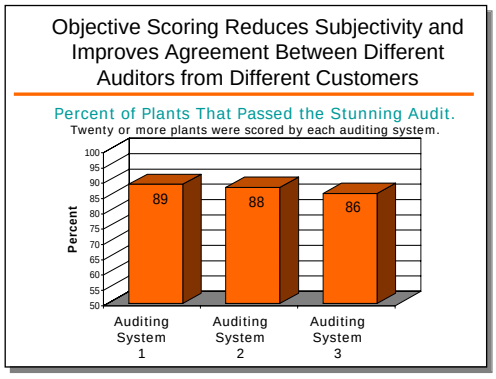
I am going to go quickly through how the scoring works. In the big plants you score 100 animals. In the smaller plants you score an hour of production.





One of the most frequently asked questions on scoring is how do you score vocalization. You just count. Did he moo during handling and stunning? Yes or No. You don't score vocalizations out in the stockyard, you just score while you are actively handling. Then I get asked "Some plants routinely shoot the bulls twice. How do you score it?" Well, I have to see them before it gets the next shot because you have to show me that you can put down 95% of the cattle with a single shot. How do you score electric prod use? Well, they touch them with an electric prod and you score it because I can't tell if they pressed the button. How do you score falling? If the body hits the floor, then you score falling. It is very simple.





Our inter-observer reliability data is very high. This is data from audits that Wendy's, McDonalds and I did at the same plants, on different days, and there was not a significant difference in the percentage of plants passing.

Part 313: Humane Slaughter of Livestock Regulations

313.2 (2) **The dragging of disabled animals and other animals unable to move while conscious is prohibited.**

Stunned animals may, however, be dragged.

This is a really clearly worded regulation in the humane slaughter act. The dragging of sensible downer animals is absolutely prohibited. One of the problems with some of the humane slaughter regs is that they are vague. There are a lot of things in there about inspectors' opinion or inspectors' discretion, so what has happened with the USDA is that one plant is super strict, and at another plant they were cutting up live pigs on the rail. Just the other day I saw some awful stuff going on in a plant that was not in the auditing system. One of the things I am seeing happening out there now, plants that get regular audits from companies like Whole Foods, Sysco Systems, and others, are doing well and plants that are outside these auditing systems have some really bad things going on.

Easily Attainable Scores for the AMI Critical Control Points for Beef
(Based on Customer Audit Data)

% of cattle stunned with one shot	97–98%
% insensible (100 animal audit)	100%
% of cattle vocalizing	3%
% of cattle falling down	< 1%
% of cattle electric prodded	15%

- The AMI minimum acceptable scores are stunning 95% & electric prod use 25%.
- Breaking of tails or other abusive methods must never be used as a substitute for electric prod.

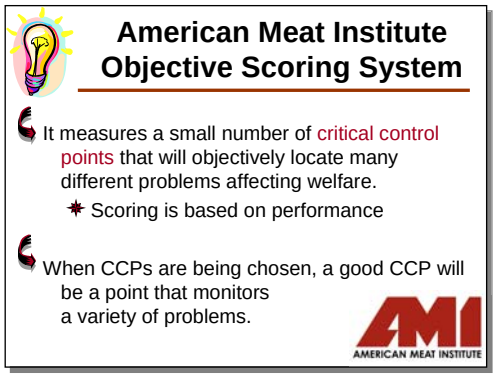
These are some easily obtainable scores. The really good plants can get 97-98% stunned on the first shot, no more than three cattle vocalizing; that's a big improvement from 50% of the cattle vocalizing, and about 15% on using the electric prod.

These are easily obtainable scores for pigs. These are scores that the plants are averaging. The AMI standard is slightly lower. The complete scoring system and the AMI standard are on my web page at www.grandin.com.

Easily Attainable Scores for the AMI Critical Control Points for Swine
(Based on Customer Audit Data)

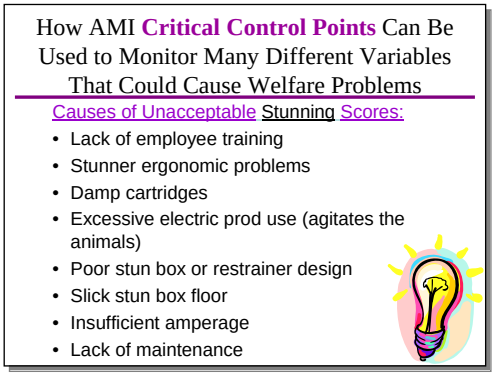
% insensible (100 animal audit)	100%
% of pigs correct wand placement	99-100%
% of pigs "hot wanded"	< 1%
% of pigs electric prodded	15%
% of pigs falling down	< 1%
% of pigs squealing in restrainer	2%

- The AMI minimum acceptable scores for electric prod use is 25%, wand placement 99%, hot wands 1%.



When determining what to measure, you have to pick out the right critical control points. I like to approach animal welfare auditing with the idea that there are certain things that are really important to measure: if you fail on these certain things you should fail the audit. You can put other things on the audit too, but you don't want to have a situation as I have seen on some European audits, where you can fail stunning and then pass because you passed a whole lot of other little walk through things. There is no way a dairy should pass an audit if they have 25% lame cows or they have a whole lot of skinny cows. There are certain things where you ought to just fail. Period. In chickens, it's things like dirty bedding and high ammonia levels in the building. If you have high ammonia levels in the building you ought to fail. Period.

This is a list of things that can cause stunning to be bad. Things like wet cartridges, training, design of the stun box, slippery floors. There are a whole lot of things that can make it fail. A good critical control point measures a multitude of sins.



How AMI Critical Control Points Can Be Used to Monitor Many Different Variables That Could Cause Welfare Problems

Causes of Unacceptable Vocalization Scores (1):

- Excessive electric prod use
- Slipping in stun box
- Sharp/broken edges in the restrainer
- Missed stuns or "hot wanding"
- Animal left in restrainer

What can cause the vocalization score to be high? Possibilities include electric prod use, squashing an animal in the restrainer, missed stuns and many more things. This is why it is such a good critical control point, because there are so many different things that can cause this problem. Instead of trying to audit all those different things, I want to audit vocalization. I do want to have other items on the audit and walk through items on the audit. The point I want to make is that when you are doing an animal welfare audit, just like when you are doing a food safety audit, there are certain things where no matter what you do on the rest of the audit, the audit just fails. Period. If I go into the chicken house or the turkey house and they have black tar in there for bedding and the birds are in this black muck, they ought to fail for that.

How AMI Critical Control Points Can Be Used to Monitor Many Different Variables That Could Cause Welfare Problems

Causes of Unacceptable Vocalization Scores(2):

- Excessive pressure from a restraint device
- One side of V-restrainer runs faster than the other
- Lack of employee training
- Animals constantly balk and back up

Comparison of 1996 USDA Survey Cattle Vocalization Scores to 2002 Vocalization Scores

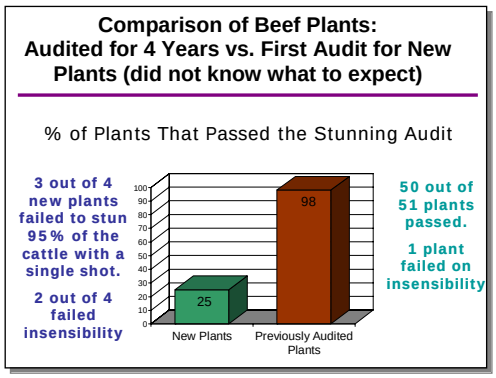
	1996 Before Customer Auditing (8 plants)	2002 After 4 Yrs of Customer Auditing (52 plants)
Avg Score	8%	2%
Worst Plant Score	35%	6%

I want to show you some comparisons of cattle vocalization scores between my original 1996 survey data and data collected in 2002 after the audits were well established. My average score was 8% of the cattle vocalizing, that's my baseline. Then after McDonalds and Wendy's got in there, Burger King got in there too, it dropped to 2%. My worst plant in my baseline data was 35% and now in 2002, 2003, and 2004 it was very similar, it dropped down to 6%. So here are the numbers allowing me to measure the improvement.

This data is from the original USDA survey where I just looked at the rough plants versus the quiet handling plants on vocalization. 22% versus 4.5%, there is a big difference there.

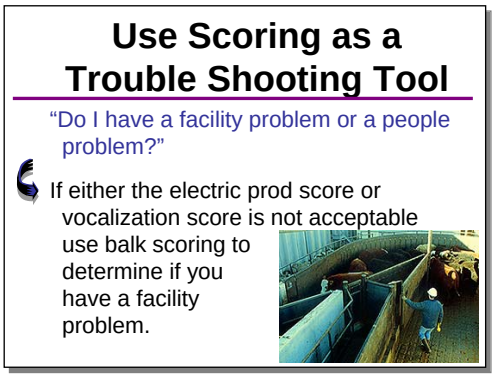
1996 USDA Survey Data on Vocalization Prior to Implementation of Regular Auditing by Both Plant Management and Major Customers

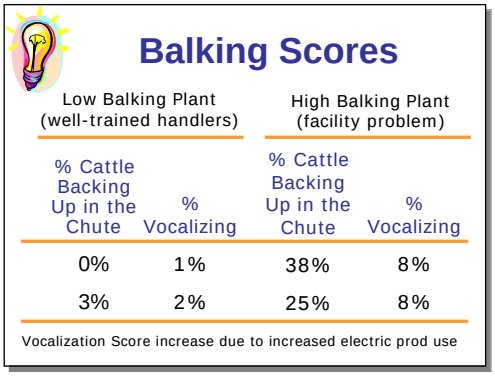
	Rough Beef Plants	Quiet Handling Beef Plants
Average % Of Cattle Vocalizing	22%	4.5%
	Excessive electric prod use; over crowding of cattle	Well-trained handlers



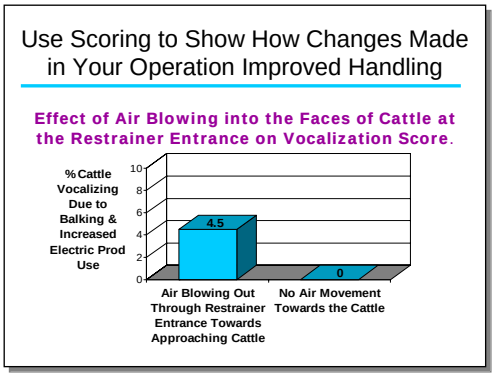
This next group of data shows the difference between the plants that were already in an established auditing system for two years and four new plants brought in this year. Three out of four of those plants failed, and one of those plants received a horrible 19% stunning score.

You can use the auditing system to troubleshoot. For example, say a plant failed on prod score. Why did they fail? You can look at the data for blocking scores. If cattle back up and they refuse to go in, they are going to have to use the prod more. You can start trying to figure out what is causing your problem.



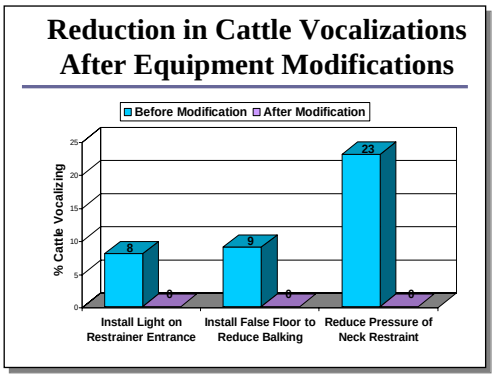


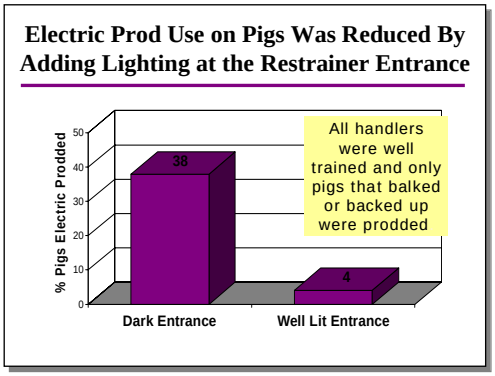
Here is an animal's eye view through a restrainer. There are a lot of little distractions that can make animals refuse to go through a system, like seeing people up ahead. You have to get down in the chutes and see what those animals are actually seeing. Then you have to fix it. Plants have done a lot of things with lighting, there have been a lot of foot non slip floor gradings put in, there have been a lot of metal shields put up to prevent the cattle from seeing people and moving equipment up ahead. The good news is that these plants did not have to go out and do major capital improvements. They had to make several little changes. Now I know some small plants, maybe right in your state, might be in the situation of failing an audit right now. They are not going to have to spend a million dollars to fix it, but they are going to have to do some little things. One of the big problem areas in the real small plants is stunning pigs. They will stun them on the floor and by the time they get them hoisted, the pig has awakened. That is the number one problem I run into in the tiny plants.



This is how you can use scoring to determine if a change you made improved the handling. One of the things that will absolutely make the animal stop, and require you to prod a lot of animals is air blowing back through the stun box. If you have air blowing into the faces of the animals, they are just not going to go in. Plants call me up and say their pigs won't go up the chute. Well, the first thing I ask is "Do you have air blowing back in their face?" If you have air blowing back in their face, they will not go in. This slide shows how the handling improved once we got rid of the air blowing back in their face.

This slide shows a reduction in cattle vocalizations after an improvement had been made in the plant. The very first bar just shows we installed a light on the restrainer and the vocalization dropped from about 8% to 0. Simple change. In another plant the cattle were able to see a steep drop off under the restrainer, so we installed a false floor. By doing that, we reduced the vocalization because we reduced the prodding. In the last plant we had over 23% of the animals vocalizing, we had a tremendous reduction in the vocalization when we reduced the pressure on a head holder. This head holder was just squashing the animals' head. When we reduced the pressure, it went down to zero allowing us to measure the improvement.

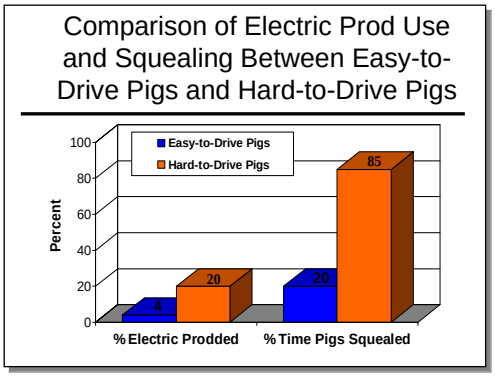


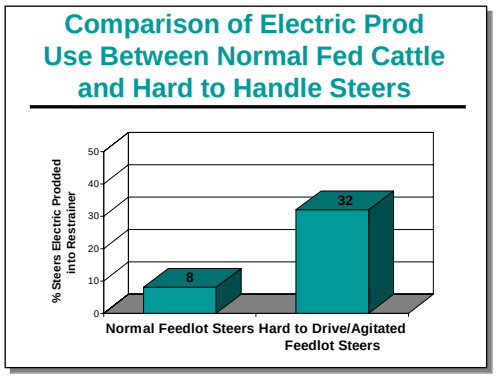


This illustrates a reduction in electric prod use when we put a light on the entrance of the pig restrainer. Then they did not have to use a prod so much because the pigs would go in. When you are working on handling things, one of the things you have to troubleshoot is whether you have an equipment problem, something with lighting, a slippery floor, animals balking or you have an employee training problem where the guy is just in there prodding every single animal with a prod. I call that the automatic prod reflex. We have got to get electric prodders out of peoples hands, because if they have them in their hand they just keep using them and using them.

Here are the results of adding a light on the entrance of a restrainer. People often ask me if animals are afraid of getting slaughtered. I don't think they are afraid of getting slaughtered. I think they are much more afraid of reflections on the floor, seeing a chain hanging down. They are afraid of the dark. I wanted to answer this question way back, early in my career so I went to the Swift Plant over in Arizona. This was back in the 1970's. I watched the cattle go up the chute; then I would run out to the feed yard and watch them go into the vaccination chute. The cattle behaved the same way at both places. If they knew they were going to die, then the cattle ought to be much wilder at the slaughter plant. Sometimes I would follow a truck so I could watch the same cattle being handled in both places and they would behave the same way. That is how I came to the conclusion that cattle don't know they are going to die but they are definitely afraid of things like the dark, reflections, or some piece of shiny metal that moves.

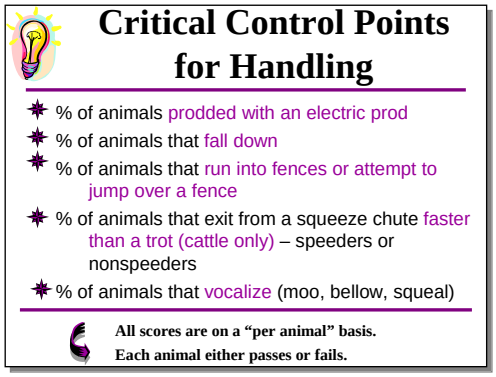
You can also use scoring to identify hard-to-handle animals. One of the things I feel really strong about is that the producer has got to bring animals that can be handled easily to the plant. There are some cattle and some pigs that are just absolutely crazy and they are difficult to handle. Now that is going to change the scores some. This slide shows a comparison of easy to drive pigs versus difficult to drive pigs. With a group of pigs that were difficult to drive, you had to do more electric prodding. One of the causes of difficult to drive pigs is that the producer has never walked through his pigs. In the mind of a pig, a person in the aisle and a person in the pen are two totally different things. People have got to get in there and walk through the pens and get the pigs used to that.





This slide shows a comparison of electric prod use on some hard to drive cattle and some normal cattle. This won't be a problem in Michigan, but down in Texas you have feed yards where all of the cattle handling is done on a horse. The animals never get to see a person on foot. Then when a person on foot goes to handle them at the packing plant, they go bezerk.

You can use objective scoring to measure handling on farms and ranches. Two of the simplest things you can measure are the falling down score and electric prod score. What's your electric prod score? What's your falling down score?



The next slide shows a simple audit or measurement that you can do with handling on a farm. If you go to grandin.com and go to my animal welfare guidelines, I do have an audit form for handling. It includes critical control points: percentage of animals prodded with an electric prod, percent that fall down, percent that run into fences or try and jump out, percent that come out of the squeeze shoot faster than a walk, and the percentage of animals that beller, moo and squeal during handling. Probably the three most important measurements are the first three here: electric prod use, falling down and animals that run into things because that is usually a sign of poor handling. It is important to put numbers on things because this prevents bad from becoming normal. The first 25 years of my career I would go out and do these seminars, I would come back a year later and the handling was awful and everybody had hurt feelings when I didn't like their handling. The thing is they slid back into awful and had not even realized it. Now, with their measuring it, I find it very effective to learn handling from my video.

These are some handling facilities that I designed. I would like to show off some really nice things. Notice that the crowd pen is only half full. Do not overload the crowd pen. This is the number one single big mistake that people make when they are handling animals. They put too many animals in the crowd pen. If you can fit 15 cattle in your crowd pen, then you should put eight in. Half full means half full. It makes a really big difference. The other principal in handling animals is not to get them all excited. We have to get people to keep their mouths shut and to calm down. When you get animals all excited it takes 20 minutes to half an hour for them all to calm down again. So the secret is, don't get them excited in the first place. When you are working in the facilities on debugging all these little distractions, you have got to find all of them. You might need to put a light on your restrainer and eliminate a reflection. Until you track down and find both of those things, it's not going to work smoothly. Animals will show you where those things are. If you bring them up calm, they are going to look at it and point their eyes and ears right towards it.

The Critical Control Point Concept Can Also Be Applied to On-Farm Auditing

Four Important CCPs for Dairy Cattle

- Body Condition Scoring of the cows
- % of lame cows
- Newborn calf care
- Handling of non-ambulatory cows

Here are some examples of how you can use the critical control point approach on farm auditing of a dairy. I think the four most important things on a dairy are on this slide. These are things where if you fail on one of these things, you should fail the audit. I don't care how many points you get on other things. For the cow's body condition, percent of skinny cows and percent of lame cows are the two most important measurements. There are a multitude of things that cause cows to be lame. An audit is a screening tool that locates problems. Then it is the job of the veterinarians, managers and animal scientists to solve the problem. Newborn calf care and handling of non-ambulatory cows: the best thing is to prevent it. These are four points where the dairy should just flop. Those are critical control points. Yes you should put other things on the audit. I totally agree with that. But in no way should a dairy be allowed to pass an audit that fails on these four things. Now where do you set the limits on how many skinny cows you might allow on a dairy? Well, you might have to go out and collect some data. But there are some dairies where 50% of the cows are lame. In the Food Marketing Institute's new standards the cut off point for lame cows is 10%.

There are many different things that can make cows lame. Genetics and conformation, rough concrete, bad hoof trimming, feeding too much grain, growing heifers too rapidly, poorly designed stalls; these are all things that can cause cows to become lame. Now, this is why lameness is such a good critical control point, because it measures a multitude of sins.

Lameness Is a Good Example of a Major Critical Control Point

Many Different Problems Can Contribute to Lameness:

- Poor leg conformation
- Rough concrete
- Improper hoof trimming
- Nutritional mistakes
- Rough handling
- Growing heifers too rapidly
- Poorly designed stalls

- An Auditor's job is to identify welfare problems that need to be corrected.
  - It is the job of plant management, veterinarians, animal scientists and/or producers to find the cause of the problem and fix it.
- Choosing the correct critical control points will increase the accuracy of auditing with a manageable number of CCPs to measure.

It's an auditors job to identify welfare problems and the job of a managers to solve it.

Feel free to visit my website www.grandin.com and download anything off that web site, copy it, use it for classes, anything you want. I also have a CD on cattle handling that I will be willing to send one free copy to the conference organizers. It also has some great slides on it. If anyone wants to copy and use those, that is just fine.

I just want to end by talking about working with the executives at these big companies. I was called in to McDonalds, Wendy's, Burger King and many other companies. When executives were first introduced to this animal welfare stuff, they said "Animal welfare, why do we have to do that?" Then it was very interesting to take the executives out of the office, out onto farms and watching their eyes open up when they see something bad. I remember the day when one of the executives saw a half dead dairy cow headed right straight for his product. Then they saw how people could get desensitized. I remember another trip where we went to a hog finishing farm, a very normal kind of hog farm, and they walked our tour group over a half dead pig that was lying in the aisle. We just walked over it like it was an old board. They were horrified. Their eyes were opened. In the beginning, some of the food safety auditors were asking, "Why we do we have to do this?" But then when they got into doing it, they said "Oh wow, there are some really good things that we can do here."