

Practice Tips

Editor's note: These practice tips were presented at the AABP Annual Convention in Kansas City on November 15, 1989.

Overturing Turnover: What Your Practice Can Do To Attract and Retain Graduate Veterinarians

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As far as attracting veterinarians or keeping veterinarians whether they are new graduates or employed veterinarians, the first point is to be sensitive to their personal welfare and to help build self-esteem. I have a list of some points that would apply to building self-esteem or being sensitive to personal welfare.

First of all, time off for family and personal needs. I think we would all agree that most food animal veterinarians probably work more hours than they want to and share out of hours duties equally. Don't exclude new veterinarians from the good accounts or restrict them to the poor accounts. I think most practices have the progressive clients that you really enjoy working with, but if you keep them to yourself and don't let the new graduate at least get exposed to them, he will soon grow tired of working with the less progressive clients.

Publicize each veterinarian's name as often as possible. Examples are signs on the front of the clinic, business cards, published advertisements, and your stationary letterhead. Provide each veterinarian with some space of his own in the clinic. I am referring to desk space; not all of us can provide a desk in a private office but I think all of us need some space where we can go and sit down at a desk, or at least some semblance of that, and do some work. Refer to each new veterinarian as an associate and not as a hired man. Introduce new veterinarians to visitors and clients; be aggressive at that so they can get acquainted as soon as possible. Stride to

make the employed veterinarians relationship with lay employees an active one. Don't reprimand them in front of others. Try to involve employed veterinarians in practice management decisions whenever possible. Let new veterinarians know that you have faith in them, and stand behind them and defend them when necessary.

The second major point is that I believe each practice has its own personality, or practice philosophy. Your practice philosophy is defined by the way you conduct your business on a day-to-day basis and not by what you might write in a manual. I think we should all strive to make our practice a role model. What happens as far as these employed veterinarians and new graduates are concerned will largely be determined by what type of image you portray. I think all veterinarians need to find a niche in a group practice. They need to feel they contribute and are needed, and if they do not find this niche, they are not likely to stay long. New graduates also need to find this on their own. I do not believe that owner veterinarians can force an employed veterinarian into any specific role. Owner veterinarians should provide an environment in which new graduates can develop the skills they have acquired into meaningful contributions to the practice goals. You should provide some guidance at times, but do not hinder their freedom to develop their own role. Group practice requires a team effort to be successful and every member of the team will contribute if given the chance.

No Bull TV: The Camcorder and Employee Education

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As they say in production medicine—improving profitability of the dairyman improves your profitability. I found that educating the owner and educating the owners' employees derives more services for my practice.

Our goal is to improve the profitability by improving milk production along with reducing losses. One of the ways a camcorder can be used is first in a nutritional and feedlot management program. By setting up the camera

you can visualize what is going on in the feedlot without any people being around. You can go over this with the owner at a later time and show deficiencies, overcrowding, and improper management.

In other areas, if you are using a feedlot program you can monitor the quality of the feed, how often the feed is put out, and the consumption. Also, if you are using a pasture management program, filming the cows showing

rotational grazing program, utilizing those dairies that make the best of it and then showing your other clients is a good teaching tool. If you are using commodity rations, and that's what most of my clients do, you can monitor the quality of the feedstuffs being purchased. You can also monitor the way it is mixed and the amount of time it's being mixed. The bottom line is that discussing with the client both in records and visual observations with the camcorder gives the dairyman a good handle on what is going on when he is not looking.

Other areas are mastitis control and quality milk production. What you can do with the camcorder is work one-on-one with the employees showing them the proper ways to properly prepare the cow. You can also show them their deficiencies in the way they prepare the cow. You can go over with migrant workers or alien workers the use of automated parlors. You can also use the camcorder to measure cow flow through the barn, look for bottlenecks, or things that are slowing down the cow flow. In large dairies cow flow is very important. You can go over teat dipping and post milking procedures with camcorders.

For reproductive programs, you can go over heat detection, breeding management and semen handling. You can work with the individual owner or his employees. You can also, in large dairies, go over a total breeding program, anything from heat detection to body condition and pregnancy testing. In a lot of the larger dairies in the southeast, the employees on the farm actually do a lot of the reproduction work, so utilizing a camcorder to further educate these employees again enhances and improves the services that you are offering to the client. If they are using milk progesterone test kits, you can make a copy of the proper way to do the test, and with any additional information, leave it on the farm for them to use as a teaching tool.

You may find one interesting reproductive case on one dairy which can be a very educational tool to all your clients. Teaching medical procedures—again on these large dairies—most often handle a lot of their own problems. And if they are going to do it, I found it is better to work with them than against them. Showing them on video the proper way to reduce vaginal prolapses and other such conditions has been very profitable to them and to me. When we go into other things, such as genetic mating and bull selection, it is also important.

Body condition is a major issue, and it all goes back to feedlot management and to proper feeding techniques. Calf and heifer management is very important. I instituted a heifer management program several years ago and probably have done my clients more good in that area than anything else. We are going over these large feeding systems, how they can wash the buckets, and check how clean are the facilities. I work with several large commercial heifer raising operations, and a lot of my clients send heifers into these operations. I will videotape them occasionally and send it back to them, and just

let them know how their heifers are doing. On a particular farm in southwest Georgia some of these heifers are owned by dairies in south Florida, so they don't get up to see them very often. A lot of my clients really appreciate this. Again you can go over other heifer management protocols such as fly control, breeding and nutritional management. Construction and design of new facilities is very much in vogue in the southeast, so if you have one client interested in freestalls you can show him what a modern freestall barn in the southeast looks like without him having to take off time and visit them. I found that if you tell a farmer to go look at something, he will drive three hundred miles to do it. But if it is one of his neighbors, often he is too embarrassed to go over and look at what someone is doing right!

So a camcorder allows me to tape those dairies that are doing the right things and show these other dairymen that it is successful. A lot of my clients are interested in parlors and how these systems are working. Just a short five-minute clip of video-tape gives them a good indication of what these new rotary and parallel systems can do. Freestall design, concrete flooring, and grooving are very much in interest now. Freestall management is very important in udder health, also the quality of the animal's life inside these total confinement operations.

In the southeast environmental management due to heat stress is very, very important. Looking at the kinds of shade show the owner that palm trees don't give very much protection! He tells you he's got trees but they do not give what the cow is looking for, so instead she makes her own mud bath. Again this is a good indication for predipping. Sometimes designs of barns are important when the mud gets so deep that you can't see the Jersey cow there. It is time to do something.

A dairy near Gainseville, Florida has a man-made cooling pond made of concrete. I believe it is the only one in the United States. A very innovated design allows for cooling of the cows. Some dairies are not familiar with prewashed pens, sprinkling systems, and fans for maximum cooling, so taking videos of these ultra-modern facilities and then reducing them in scale to fit the small dairy has been very beneficial.

I hate trimming feet! If you have subsolar abscesses or any kind of foot or leg problem, I try to show my clients how to properly handle these problems and how to put a wooden block on. I would rather show them on a videotape than in person—disease control, autopsies, disease management—just showing them what is going on. You can also show them what is happening by going over autopsies, poor roughage management, and cases of toxicity. Some dairies do a real good job of forage management, others don't, so going over with a video-tape of what a good client is doing is very helpful to these dairymen. When new modes of transportation arrive everyone is interested. Last but not least, I like to share some of the happier moments in my life with my clients.

Tips from Head to Tail

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I would be lost without rope halters. I think they give at least as much restraint as nose tongs; if put on correctly they are a lot easier to use. Sure, it is quick catching a cow with tongs the first time, but after that she remembers, and anything you try to do to her in the future will be more difficult! They hate the nose tongs worse than the procedure most of the time. It is a lot easier to deal with repeat customers if you throw away your nose leads and replace them with halters. It is not easy to get good halters and I end up making my own. For my purposes they should be made of 15 feet of slightly stiff 1/2 inch polypropylene or nylon rope. Preferably used rope; plastic rope doesn't hold knots very well until it is a little frayed. Sometimes you can get a coil of used rope from power or telephone linemen or a tree surgeon. They throw it out about the time it gets good for rope halters. The big advantage of plastic rope is that you can drag it through mud and blood until it's unrecognizable, and throw it in the washing machine and it comes out as good as new. It comes out of the spin cycle virtually dry enough to use. My normal rope inventory is 1-30 foot rope, 3-15 foot halters, and 2 short loops of rope. Heads are not the only place I use halters. For ventral paramedian abomasopexies, we use three halters, one for the head, and two for each pair of feet. Halters work very well for tying feet: put one foot through each loop and put an extra loop figure eight approximately on the leg and once around between the legs to tighten it all up. I have never had one close to getting loose.

To measure heifers, we use a stick made out of 10 dollars of PVC pipe and a line level. The level is on the top bar. You get the top level and measure the distance to the floor. The scale is marked on the smaller PVC pipe that telescopes into the larger pipe so you can read the height. There is just enough friction in the telescoping joint that you can get it adjusted in between jumps by the heifer and pull it away to read the scale. It comes apart easily for storing and is completely moisture proof so you can clean it with a boot brush. Buy a pocket tape measure and carry it with you always. When my client asks, "Is that heifer big enough to breed," I tape her. Just remember that sixty-six inches is about eight hundred pounds for dairy breeds. Eight hundred pounds breeding weight, sixty-six inches, roughly. If you want to get fancier than that you can use a table or a computer program that con-

verts inches into weight.

In a good hardware store, you will be able to find a pair of end cutting wire cutters for removing extra teats from calves. I find them a lot easier to use than scissors because I can reach down and position them on the offending teats, then get my head out of the way and just pinch the handle together, and off it comes. What you want is end cutters, not diagonal or side cutters, and not every hardware store carries them.

I devised a little incubator for dispensing to farmers, but we are using several of the incubators in our own lab. They cost about \$15 to build and consist of two plastic boxes nested together, which are placed in the upper box with water and an aquarium heater between them, and you put your plates in the upper box. It does an excellent job for a few culture plates, but if you put in too many, the upper ones will warm up slowly. You can use several incubators at different temperatures if it suits you or even set the temperature high enough to use one for lab pasteurizing milk samples. A regular cheap aquarium heater costs about \$4. You need a pair of rubbermaid ice cream storage boxes or similar boxes that nest together leaving an appropriate space between them for water in the aquarium heater. Then all you have to do is cut a hole and put in the heater. You may have to seal it with caulking compound. You will also want to drill a small hole for a dial type thermometer such as you can buy from NASCO. The aquarium heater runs horizontally in the sealed water compartment.

People ask me about flies. What good does a tail do against house flies? It just spreads more manure on a cow's back to give them encouragement. If you can't control biting flies maybe you should leave the tails on, but I'm convinced with housed cattle and reasonable fly control, the tail is a net detriment to a cow as well as to milkers. Tails are removed with an elastrator band. You can do it at any time, except they take forever to come off in really cold weather, probably because the rubber gets weak. It's a little harder getting the length right in calves because the vulva is not fully developed. You want the tip just below the vulva so that it doesn't irritate the vulva when she swishes her stub. There is one disadvantage. It seems that cows throw feed around more if they don't have tails. That is not much of a problem with headlocks.

Aids for Bull Fertility Testing in the Field

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Greetings from Idaho. Like many of you, we encountered such a variety of laboratory facilities and weather conditions when we were conducting fertility evaluations on bulls, that we felt it was necessary to create a standard environment for doing our semen examination. To do this we created a box to serve as a mini lab and a semen collection cover to protect our sample. The box is made of 3/4 plywood, is 15 inches high, 19 inches wide, and 17 1/2 inches long. The lid is made of 1/4 inch plexiglass, is less breakable, and gives you a view inside the box. Holes are cut in the lid to accommodate the eyepiece of your microscope. The front of the box has portholes for your arms and they are protected by splinted rubber innertubing.

The box is heated by a light bulb from the top and a heating pad from the bottom. Both of these are controlled by a thermostat. The pad also serves as a warmer for your slide and diluents. Different sizes of light bulbs can be used to meet your heating needs. A small piece of foil can be placed over the bulb to keep the reflection out of your eyes.

Due to the box size and weight it is easy to transport in your practice vehicle and to a position in the field. I prefer to place it in the back of the practice vehicle where

it is protected from the top and sides and keeps you out of the weather and the sun light. Also, it is convenient for the other supplies that you might need while you are doing your collection work.

The protective cover that we have over the semen vial is made of insulated fabric which is doubled with a plastic viewing window on one side. We take the disposable cone and vial, place it on the holder, and then place the protection cover over that. The background behind the window is of a light blue color, which is a lot better for viewing your sample. I prefer to use this method for collecting a sample over the water bath. I find keeping a constant temperature very difficult with a water bath. It is heavy and awkward to handle, I'm always spilling it, my hands are wet and the disposable cone and collection vial will float, making it very difficult to get your sample.

When we are dealing with a large battery of bulls a long way from our hospital, we carry an extra microscope and ejaculator just in case we have an accident or something goes wrong. We like to be able to carry on after we have gone to the trouble to assemble the bulls, and make it a point to be prepared for some of the uneventful things that might happen to us.

Alternatives To DHIA

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Only about 40% of dairies are using Dairy Herd Improvement Association (DHIA) programs. Poor use of state DHIA program is often puzzling to those who administer these programs. There are many good dairies that will not use DHIA programs but understanding why requires a sensitivity to the demographics of agriculture. It is a little known fact that some dairies are not in a DHIA because of religious objections.

The Problem

The DHIA systems in our part of the country are run as co-operatives. A co-op is user owned. Profits, if any, are divided among the users in proportion to volume of use.

The objection by some churches to membership in a co-op is based on biblical scripture. Advice is given by the Apostle Paul in his second letter to the Corinthians. He said, "Be ye not unequally yoked together with unbelievers." (2 Corinthians 6:14)

Paraphrased, this means "Don't go into business with someone you don't know." Not bad advice even in 1989.

Members of a co-op are, in fact, its owners. They are an owner along with a great many others, most of whom are strangers but more importantly are not of the same religious persuasion. In the view of some churches there is a difference between being **in** business with and **doing** business with a second party.

There are a great many dairies out there who want and need a computerized production records system. But, they face a dilemma; to get a records system they must join a co-op. To do so is in violation of the tenets of their religious doctrine.

A second problem is that of the complexity of computerization. Electricity, something we take for granted, is not present on "old order" farms. These dairymen are intelligent but they have usually completed only the 10th grade in school. They are intimidated, as are many of us, by computers so are usually not interested in operating their own system.

A third and often frustrating problem for standard DHIA members is the difficulty in getting errors and omis-

sions corrected. Some dairies have quit their DHIA over such issues.

The Solution

Being comfortable with computers as well as being in a farm advisory position makes the local dairy practitioner a natural second choice for dairy herd improvement programs.

Our practice offers a program with two variations:

1. Dairies record milk weights and in some cases also CMT scores and submit to us on a simple form.

2. Other dairies record milk weights and sample milk into specimen containers with preservative. Milk specimens are sent out to be analyzed by a milk lab. For example, The Pennsylvania State University DHIA system offers a program where by they will analyze butterfat, somatic cell counts and protein on milk samples submitted by non DHIA farms. The charge is 45 cents per sample plus 3 cents per sample for transportation to the lab. They accept out-of-state samples. In our practice milk samples are delivered to the clinic by the dairyman. Samples are stored in our walk-in cooler until picked up by the DHIA route truck.

Data from the dairy and the milk lab is entered into our program.¹ Reports are generated and mailed from our office. Our fees for this program are based on number

of data inputs and number of cow records printed.

Client satisfaction is good because it's a locally controlled system and corrections are easily made.

Approach prospective dairymen with a proposal that your practice provides computerized production monitoring services. This service will be welcomed by a small but important segment of your clientele. They may be motivated by the religious issue, the cost advantage or the local control advantage. Possibly they have become embittered by misunderstandings with official DHIA.

Several dairyman have actually discontinued their official DHIA to use our program. We don't encourage this. However, when asked why they had changed they responded that our system was less expensive and they didn't have to belong to a co-op.

There is little or no professional time needed for this system to work well. Office personnel can operate the program with very little supervision.

The visit to the clinic by the dairymen to drop off samples and pick up sampling kits provides an opportunity to confer on problems, schedule work or dispense product. It is another way to have a "value added practice" and one more way to market your service.

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Full Thickness Lacerations of the Bovine Nose

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Full thickness lacerations of the bovine nose occur periodically in animals handled by a nose ring. In most cases, these injuries can be repaired successfully from both a functional and cosmetic standpoint.

The injured animal should be restrained in a squeeze chute and sedated so as to remain standing. 40 mg of xylazine and 10 mg of butorphanol tartrate is sufficient in most adult bulls. The animal's head is secured to the chute with a halter. The infraorbital nerves are blocked by injecting 10 - 15 ml of 2% lidocaine at the infraorbital foramen and in the surrounding tissue. The foramen is located midway on a line between the nasomaxillary notch and the first cheek tooth.

The surgical sight is prepared for aseptic surgery. Wound surfaces are debrided as needed. Three evenly spaced simple interrupted tension sutures are replaced using #3 Vetafil on a S-shaped needle. To place the tension sutures, the needle is passed through the full thickness of the nose approximately 1.5 - 2.0 cm above the laceration. The needle is then returned out through the full thickness of the flower segment of the nose. When all three sutures are placed, they are tied. These sutures will insure wound edge apposition on the posterior aspect of the laceration.

Following placement of the tension sutures, closure of the wound is completed with simple interrupted skin

sutures. Wound gapping and subsequent dehiscence may occur at the lateral edges of the laceration. Proper alignment of the wound edges and an adequate number of skin sutures will help prevent this problem.

Attentive post surgical care is important in preventing complications. Antibiotics are administered for 3 - 7 days. The nose should be soaked daily with a solution of warm water, magnesium sulfate and complexed iodine. The wound should be examined daily for foreign bodies from feed and bedding that commonly enter between the wound edges. Soft, stem-free hay or pelleted feed is preferred.

Sutures are removed in 10 - 14 days. The ring can be replaced as early as the fourteenth day, but the animal should be handled with a halter in conjunction with the ring.

I have performed fifteen surgeries utilizing this technique. Eleven healed uneventfully and four dehisced. Of the four that dehisced, three healed uneventfully following a second attempt two weeks after the injury had occurred. One nose was sutured three times without success. No additional surgery was performed.

The major causes of dehiscence can be minimized. Dehiscence in two cases was related to feed material entering between the wound edges. Ischemia, secondary to excessive suture tension, resulted in dehiscence in two other cases. Adequate debridement, proper suture tension, good wound apposition, and close post operative observation are all essential in preventing failure of this surgery.

Practice Tip

Sodium Toxicity

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Veal barn veterinary consultation is an area of practice which has immense room for expansion in dairying areas of the Northeast. Veal barn operators in my area of Pennsylvania have access to considerable advice from their suppliers of calves and feed and have liberal access to drugs for the treatment of disease. Too often, the veterinarian is the last one consulted for an outbreak of disease in a veal barn. It is easy to be influenced by the owner's diagnosis and selection of calves to be examined and "not see the forest for the trees."

In this case, I was called to a 250 calf veal barn which had lost 20 calves over a period of three months to an acute apparent respiratory condition. There happened to be one severely affected calf that morning and one which had died during the night. Several others were backing off their feed and seemed to be in the early stages of sickness. Affected calves were 6–10 weeks of age.

Upon entering the barn, I was immediately impressed by the bawling of calves as I filled my water bucket in the sink. Normally a veal barn is quiet after the morning feeding, but this day the calves seemed to be begging for more. I thought that was odd and went on to examine a few sick calves. There were no obvious signs except slight depression and mild diarrhea. Usually, more information can be gained from autopsy, so I proceeded in that direction. The calf that died during the night had no gross lesions. The acutely affected calf had died within the hour so we went on to take a look at this one. It was in good body condition and had froth coming from the mouth and nose. Mucous membranes were bluish tinted. Abdominal organs appeared normal. The owner elaborated that the calf had shown incoordination, seizures, and respiratory distress with frothing at the mouth and then died. It had seemed normal up until this morning. The lungs had anterioventral consolidation but this did not look like severe enough pneumonia to have killed the calf. Pulmonary edema was the primary lung condition with much fluid froth in the airways.

During the autopsy, we discussed the feed and water supply of the calves. An 18% protein/18% fat milk replacer was being fed and the calves were drinking a two gallon bucket of water at mid-day. Their thirst seemed greater than usual. The owner was convinced that the sporadic losses of calves over the past three months was due to some related syndrome because all had died

suddenly. By this time he was willing to spend whatever he had to in order to get an answer. Sections of kidney, spleen, liver, trachea, lung, myocardium, and brain were submitted for histopathology. Aqueous humor and spinal fluid were taken for sodium analysis. Spinal fluid was taken by aspiration from the epidural space ventrally as the head was being removed at the atlanto-occipital articulation. Blood samples on six live calves were submitted for serum chemistry.

Briefly, histopathology showed congestion of kidneys and spleen, and bronchopneumonia with pulmonary edema. Aqueous humor sodium was 210 meq./l. and CSF sodium was 258 meq./l. Serum chemistry showed elevated alkaline phosphatase, potassium, and phosphorus in all six calves and elevated chloride and sodium (greater than 160) in three calves.

What is your diagnosis? My diagnosis was sodium toxicity. This is supported by the calves' intense thirst and by a finding of elevated sodium levels in CSF, aqueous humor and serum. Also supportive is the fact that a water softener for hot water only had recently been installed, which exchanged sodium ions for calcium ions. Hot water was being used to mix the milk replacer. Hot water sodium levels were 129 mg./l. and cold water sodium levels were 22 mg./l.

A three-fold problem was existing in this barn. First and foremost, access to fresh water in veal barns is restricted. Second, the water softener was adding sodium ions to the sodium already present in the feed. Third, as we found out later, the feed manufacturer had doubled the sodium bicarbonate level in this particular batch of feed. Sodium was acting as a saline cathartic causing diarrhea in some animals. Absorbed sodium caused an osmotic effect creating hypersalivation, increased nasal secretions, and fatal pulmonary edema. Edema of the brain caused diffuse CNS signs. Finally, and most supportive of sodium toxicity, was the fact that the syndrome ceased when the water softener was disconnected from the system.

I think this was an interesting case because an ordinary essential feed ingredient present in excessive amounts was causing a fatal metabolic disturbance in calves and because the water supply was primarily responsible. On the surface, there appeared to be an acute, infectious, respiratory disease, yet with laboratory and autopsy findings, sodium toxicity turned out to be responsible for diarrhea, respiratory disease, and CNS signs seen in this barn.

Practice tip presented at the AABP Annual Convention, Calgary, Alberta, Canada, Sept. 28–Oct. 1, 1988

Practice Tip

The Use Of Body Condition Scoring In Dairy Production Medicine

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The dairy industry has been constantly evolving for at least the last 50 years. In 1930, there were nearly 4.5 million dairy farms in the United States averaging only 4,000 pounds of milk per cow. In 1985, the number of dairy farms had been reduced to only 273,000 but milk production had increased to over 12,000 pounds of milk per cow. There is little doubt that this process will continue into the indefinite future. In a recent publication of the AVMA, it was projected that there would be a 25% DECREASE in the number of dairy cows in the United States by the year 2000.¹ Although there will be an increased number of animals per dairy, it is clear that there will be a significant decrease in the number of clients and patients available for the sustenance of a dairy practice. Moreover, with the tremendous increase in new veterinary school graduates that has occurred in the last ten years (assuming even a decreased proportion of these new graduates wish to pursue a career in dairy medicine), the number of dairies per dairy practitioner will continue to decrease. Many dairy veterinarians have responded to this changing economic situation by increasing the services that they can offer to their clients. Getting involved in the production management side of the dairy operation can be difficult at the onset. The use of body condition scoring to assess the quality of the management program in general, and the nutritional program in particular, has provided many practitioners with a relatively easy and meaningful entrance into dairy production medicine.

Milk production for the average cow peaks when she is 35 to 55 days in milk. Unfortunately for the cow, her ability to consume feed does not peak until about 40 to 50 days later. Even with very energy-dense rations, the cow relies on stored body fat to make up the deficit between the energy that she is able to take in (eat in her diet) and the energy that she expends (maintenance and milk production). A high producing cow will lose somewhere between ONE AND TWO AND A HALF POUNDS OF BODY WEIGHT PER DAY during the first 100 days of her

lactation in order to sustain her production. Obviously, if she does not freshen with sufficient stores of energy (body fat), she will not have the reserves to reach her genetically-controlled potential peak production. Since cows generally produce milk along fairly typical lactation curves, a lack of peak milk will continue to affect production throughout the lactation (a pound of peak milk is approximately equal to 220 pounds of milk during the entire lactation). Equally important is the fact that cows in severe negative energy balance often are delayed in breeding back.

An excellent way to monitor how well cows are doing is by assessing their body fat status through the use of body condition scoring. Ideal times for scoring these animals correlate well with times that a veterinarian typically sees these animals:

- 1) At freshening (or shortly thereafter)
- 2) Pre-peak (post-partum rectal exam)
- 3) Post-peak (pregnancy exam)
- 4) At dry off (pregnancy recheck?)

The practitioner can easily start to body condition score animals while performing other tasks, e.g., a physical or rectal exam, and eventually, as the dairyman begins to see how important this information can be, this procedure can be routinized and evaluated as part of a schedule production medicine program.

The scoring system most commonly used was developed in Scotland but was modified by Wildman et al in 1982.² This system tries to establish the amount of tissue covering the skeleton along the entire topline through the use of visual and palpable assessment. Particular attention is placed on the amount of flesh covering the chine, loin, and rump areas. Scores are levied in whole numbers on a scale of 1 (completely emaciated) to 5 (extremely obese). The observer can further break down the spectrum into increments of 0.5 or 0.25 points or simply use the terms "plus" or "minus". Typical numerical scores are assessed as follows:

Practice tip presented at the AABP Annual Convention, Calgary, Alberta, Canada, Sept. 28–Oct. 1, 1988.

Body Score One

- Individual short ribs have limited flesh covering with ends that are sharp to the touch
- Overhanging shelf effect in loin region
- Backbone in chine, loin, and rump region very prominent
- Hooks and pins are sharp with little flesh covering
- Deep depressions between hooks and pins and between hooks and backbone
- Complete absence of fat between pins and tailhead; ligaments and vulva very prominent

Body Score Two

- Individual short ribs are discernible but not prominent
- Ends of the ribs are sharp but have greater flesh covering
- Individual bones of the chine, loin, and rump are not visually distinct but are easily palpated
- Hooks and pins are prominent, but the depression between them is less severe
- Area between the pins and tailhead is depressed, but the bone structure has some flesh covering

Body Score Three

- Can feel short ribs by applying slight pressure
- Short ribs appear smooth and the overhanging shelf effect is not noticeable
- Hooks and pins are rounded and smooth
- Area between pins and tailhead is smooth but without signs of fat deposition

Body Score Four

- Individual short ribs are discernible only by firm palpation
- Short ribs appear flat or rounded with no overhanging shelf effect
- Ridge formed by backbone in chine region is rounded and smooth
- Loin and rump regions appear flat
- Hooks are rounded and the span between hooks is flat
- Area around pins and tailhead is rounded, with evidence of fat deposition

Body Score Five

- The bone structure of the backbone, short ribs, hook and pin bone regions is not apparent
- Evidence of subcutaneous fat deposition is prominent
- The tailhead is buried in fatty tissue

Recent work in Florida³ has shown that differences in body condition at calving, pre-peak, and post-peak are correlated with differences in actual milk production during that lactation. As seen in Table 1, the trend shown in the data is that the highest milk production was attained by those cows that freshened with a body score of 3.5 to 4.0 and then lost about one full point of body condition in the first two months of lactation (milk production values with different superscripts within the same category and in the same column are significantly different). As shown in Figure 1, reproductive performance also seems to be better in those animals that freshen with adequate, but not obese, body condition (body score of 3.0 to 4.0) and then lose an appropriate, but not excessive, amount of body weight (body score of 2.5 to 3.0 after two months of lactation).⁴

Although these trials were conducted in the hot climate of Florida, the data correlates well with the clinical experience of this author and other practitioners from around the United States. By body scoring cows on a regular basis, the dairy practitioner has another tool for diagnosing production and reproduction problems in client herds. As in sick animal medicine, once the diagnosis is accurately made, appropriate therapeutic regimes can then be employed. Response to therapy can then be assessed by the continued monitoring of herd body condition status.

References

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