

Transition Cow Management

Big Challenges.....Big Opportunities

The greatest health risk in the life of the dairy cow is calving. The steady stream of freshenings on modern dairy farms has created the need for specialized maternity/fresh cow labor, constant management attention and a lot of dollars dedicated to skilled workers and pharmaceuticals. The term *fresh cow program* has been replaced with the concept of *transition cow management* extending the time frame that impacts fresh cows. Drs. Nordlund, Cook and the team at the University of Wisconsin have published compelling data that identifies critical transition management bottlenecks. The following is a summary of the latest information that impacts transition cow performance. The goal is to transform your fresh pen into the profit center you need it to be.

6 Keys to Successful Transition Cow Management

- 1. Facilities and Cow Comfort Issues**
- 2. Feeding**
- 3. Vaccination Protocols**
- 4. Milk Quality**
- 5. Maternity Pen Management**
- 6. Disease Prevention and Monitoring**

Key 1: Facilities and Cow Comfort Issues

Keys 1 and 2 are closely intertwined as both have a major impact on “Job 1” for all transition cow efforts, which is to minimize dry matter intake (DMI) depression pre-fresh and maximize DMI post fresh. Whether you have 5 or 500 dry cows, they each require adequate, comfortable space to rest, a non-competitive place to eat and abundant, clean water to drink. Freestalls, bedded packs, pastures or dry lots can all work if managed correctly. The gold standard for freestall bedding is washed, dry, virgin, sand. All other bedding materials (Alternative Beddings) must be managed with strict attention to details. Packs, pastures and dry lots must always be clean and dry. Far off dry pens are often crowded or housed in old facilities. This is not ideal but can work if feed bunk management is excellent and the bedding surface is clean, dry and comfortable. Bunk management is critical to maximize DMI for every transition animal. The current recommendation is 30” of feeding space per head with a stocking density of 85% based on bunk space not bed space. You need 2” of linear water access per head and the water must be clean. Dead-end alleys can reduce water and TMR intakes for timid animals, especially in mixed cow and heifer pens. Crowding close-up and fresh cow groups is without question a recipe for disaster. Transition pens must be large enough to meet the above guidelines during the busiest times of the year and don’t look at them during the slow calving time.

Separating cows from heifers during the transition and fresh period is a strategy that pays big dividends on reducing fresh heifer problems. Springing heifers are extremely challenged when put into dry cow pens. They are socially stressed causing reduced lying times and DMI depression. Additionally their nutrient requirements for growth and proper udder development without edema are different than cows. Edema problems can also develop in heifers fed an acidified close-up diet. A single dry group can work if you are short of space, but you must observe the 30”/85% feed bunk stocking rule. Minimizing group moves during transition or lactation reduces social stress and is always an excellent goal. BCS changes must be made with TMR changes during lactation not during the dry period. Long dry periods (> 90 days) are a recipe for fresh cow disasters. The only hope of getting them to freshen successfully is through exercise. Open lots or pastures with forced exercise will reduce internal fat and improves muscle tone.

Key 2: Feeding

DMI is critical for excellent fresh cow results. The TMR must be formulated to bring the correct nutrients to each animal daily, based on their changing DMI. The newer concept of a high fiber dry cow and close-up diet has proven helpful in improving fresh cow results. Clean, dry straw or soft, grassy hay work best as fiber sources because of their low potassium (K) levels. Low K intakes in pre-fresh diets are critical to reduce calcium imbalances in the fresh pen. The primary fiber source must be processed to a length that will minimize sorting but still provide effective fiber and adequate rumen mat formation. Shaker box analysis and TMR moisture levels are important to make these bulky diets work.

Jersey's and Crossbreds are surgical at sorting TMR's. The goal for far off dry cows is 30# DMI while springing heifers should be eating 25-27#. As the fetus occupies more abdominal space, both cows and heifers decrease their DMI's by 3-5#. Research shows that fat animals during close-up experience greater DMI depression than thin animals which increases their freshening risks. If Rumensin is in the close-up diet it needs to be in the far off diet to prevent DMI suppression during dietary transition.

The formulation of transition diets is critical and best accomplished by experienced nutritionists. Key ingredients to balance are starch and protein levels. The important point is a cow has a daily requirement of protein and starch best measured in grams/day. The nutritionist builds a diet with a percentage of protein and starch in every pound of TMR based on an assumption of what each animal will eat. If an animal eats less in a day she will be short in grams of protein and starch and start down the road of metabolic trouble. In stanchion barns, you feed each cow based on her needs which is perfect during transition. In large groups you feed to the average animal. This means 50% of the animals in a group are under fed protein and starch on a grams/day basis. To deal with DMI variation during transition some nutritionists will assume lower intakes or build rations with a slightly higher level of protein and starch as insurance.

DCAD balancing is the best way to reduce fresh cow calcium imbalances. The first step is to reduce K intake in all pre-fresh diets. Test all ingredients for K levels (this should include commodities) then decide what type of acidification can be applied to the TMR. It can be as simple as adding some calcium or magnesium sulfate to the ration. Commercial acidifiers can be added for a stronger pH change or the traditional acidification with negatively charged salts can be added to the TMR. Checking urine pH levels in the close-up group is essential to monitor correct acidification. Too much is as bad as too little. Dr Mike Overton recommends all urine samples for Holsteins be in the range of 6.1-6.8 with Jerseys and Crossbreds best in the range of 5.5 – 6.4.

The fresh pen may be the hardest to feed because it has such a diverse group of individuals eating the same TMR. It will have cows and heifers that are 1 day fresh with 30# DMI and pen mates fresh 2-3 weeks with +50# DMI. Once again getting the protein and starch levels balanced correctly with enough effective fiber to fill the rumen up are critical points. Being low on these important ingredients appears more dangerous than being a little high on their inclusion rate. It is best to move healthy animals out of fresh pens in 10-14 days.

Fresh cow problems in the first 5 days (retained placenta; ketosis; DA's) often have their roots in the close-up or maternity pen, while later fresh cow problems often start in the fresh pen. DMI, crowding or sorting are the first places to look for answers to early fresh cow problems. Measuring NEFA's in the close-up pen and BHBA's in the fresh pen can help evaluate energy imbalances that lead to more severe metabolic problems. A variety of other ingredients make up an effective transition cow TMR. Vitamins and minerals are important for immune function and overall metabolic performance. Specialty ingredients like choline, lysine, methionine, probiotics, yeasts, toxin binders, immune enhancers and other products are beyond the scope of this paper and are decisions that you must make with the advice of your nutritionist and veterinarian.

Key 3: Vaccinations

Disease prevention is essential for a successful transition cow program. A healthy, well-functioning immune system anchors disease prevention efforts and is achieved by implementing Keys 1, 2 and Key 3, an effective vaccination program. The best advisor to develop such a protocol is your attending veterinarian. They know the diseases putting the greatest pressure on your herd and the vaccines that will work best from a long list of choices. Vaccines are made from viruses or bacteria. They can be killed (chemically or physically inactivated) or modified-live (chemically changed during manufacturing to minimize replication). Each type of vaccine has its advantages so work with your veterinarian to decide which is best for your situation. 5 classes of diseases can be prevented or reduced in severity with correct vaccine usage.

1. Respiratory..... viral and bacterial pneumonia
2. Reproductive..... early embryonic deaths and abortions
3. Digestive..... HBS (clostridium) and bacterial enteritis (salmonella, etc)
4. Coliform mastitis..... reduce the severity not the incidence
5. Colostrum enhancement..... improve colostrum quality

Control points for successful transition cow vaccination protocols

1. Protocols should never schedule more than 2 G- vaccines at the same time
2. Colostrum enhancers require the first booster be given 21-30 days pre-dry and the second at dry off.
3. Coliform mastitis vaccines (commonly called J-5's) work better when given more often.
4. Digestive vaccines are relatively new to adult dairy cow protocols and can be very important.
5. Too many vaccines at dry off may lead to abortions a few days post dry-off.
6. The cow's immune system experiences a natural suppression pre-calving so limit vaccine usage then.

Key 4: Milk Quality

According to the NMC, up to 60% of fresh cow environmental mastitis cases originate in the dry period. Two weeks post dry off and 2 weeks pre-calving are the periods of greatest risk. Mastitis is the reason why overcrowded pens, dirty freestalls, wet pack areas, poorly groomed dry lots and no fly control are very expensive mistakes.

Control points to minimize environmental mastitis

1. Use dry bedding in all transition pens. Correctly sized freestalls with dry, virgin sand is the gold standard. All other pen designs must be dry, comfortable and carefully maintained.
2. Dry off protocols must include an antibiotic recommended by your veterinarian. The technique must be perfect every time with carefully sanitized teats and no tube contamination.
3. Teat sealants reduce the risk of new mastitis cases. Internal sealants must be infused with the same care as antibiotic tubes. External sealants must be applied 2-3 times to maximize their sealing durability.

Key 5: Maternity Pen Management

Research has verified that both large pack areas and individual box stalls can produce healthy calves and fresh cows. Dr. Ken Nordlund advocates *all in - all out* calving groups to reduce socialization stress. The data is convincing but may be difficult to implement on farms with limited facilities. New designs or remodeling projects should consider this type of calving scheme and create pens to make it work. For the majority of dairies, one of the following facility types or a hybrid version is in use.

Control points for pack area calving

1. Keep the area clean and dry 24 hours/day. Straw in the winter and sand in the summer works well.
2. A dirt floor is best for footing and can be dug out and replaced to reduce bacterial loads.
3. Never overstock. 100 sq ft per cow is a minimum. The area must be cleaned every 2-4 days.
4. Multiple pack areas are best. 1 in use, the others cleaned, limed and drying. Rotate every 30 days.
5. Small farms can use cameras for nighttime monitoring or a good alarm clock.
6. Large farms must have 24 hour staffing with pen walk-throughs every 1-2 hours around the clock.
7. Record labor start times; Do not disturb active labor until necessary.
8. Watch all cows to identify quiet labor that can lead to an emphysematous fetus.
9. Move calves and cows out of calving pens quickly to reduce bacterial exposure

Control points for individual pen calving

1. Animals must not be put in pens for long time periods. DMI suppression can occur.
2. Move animals during stage 1 labor
(water bag showing; mucous plug passed; bloody discharge; mild pushing; restless).
3. Moving during stage 2 labor (feet showing; active pushing) can stop labor for 3 - 5 hours increasing calving problems and DOA's.
4. Calving pens must be cleaned and re-bedded after each usage.
5. Remove calves from cows and cows out pens as soon as possible.

Control points for successful maternity pen protocols and practices

1. The maternity manager and the veterinarian must create calving protocols. (See Appendix Doc.1)
2. The protocols must answer the following questions:
 - How often do I walk the close-up and maternity pens?
 - How long do I let a cow or a heifer labor before a vaginal exam?
 - How do I perform a vaginal exam?
 - How do I recognize and correct all basic calf mal-positions?
 - How do I identify a uterine torsion?
 - How long do I work on a calving before calling for help?
 - How do I use a calf puller safely?
 - What problems do I immediately call for help?
 - What do I do to the newborn calf and the just fresh cow?
 - What information do I record? What information do I put on the cow?
3. Cameras and digital recorders make monitoring calvings easier and future training more targeted.

Key 6: Disease Monitoring

This key is last because a sick cow represents a failure of Keys 1-5. The goal is to make quick, accurate diagnoses, initiate treatments to cure the individual and implement changes to prevent new cases. Establishing protocols, monitoring compliance and capturing data is essential to measure the results. Our ultimate responsibility is excellent animal care while producing safe, wholesome food with no residues and documented proof of these accomplishments.

Disease monitoring in the fresh pen is the most difficult job on the dairy. Even an experienced veterinarian is challenged to understand every problem in the fresh pen so it is understandable that farm employees struggle to make the right diagnosis and choose the best treatment on every case. Ongoing training and supervision from your attending veterinarian is essential to achieve the best results from your fresh cow program.

Fresh pen headlocks are ideal to facilitate quick and safe daily examinations. Cows must be locked <1 hour per day no matter the group size. Supplies on a cart or wagon and teams of 2 people can make short work of this daily event. Cows that don't lock require close examination. Palpation rails can work for daily exams. Challenges with this system are time away from the TMR and the stress of being crowded against each. Cows are talking all the time.....we simply must stop and listen.

Control points for disease diagnosis and prevention in dry and close-up cow

1. **Mastitis** is the most frequent transition cow disease.
 - A pre-dry off group to slow milk production will reduce mastitis risks in high producing herds.
 - Comfortable freestalls are good, box stalls create dirty beds!
2. **Abortions** occur any time but are common at 6-7 months of gestation.
 - Lepto, IBR, vaccine reactions, mycotoxins and hot weather are the most common rule-outs.
3. **Lameness** is primarily a heel wart, foot rot or sole abscess problem.
 - Clean alleys, no wet areas and regular foot bath usage are important in transition pens.
4. **Pneumonia** should be a rare disease in adult cows when Keys 1-5 are working.

Control points for disease diagnosis in the fresh pen (Physical Examination) (See Appendix Doc.2)

1. Observations made in front of the cow:
 - Sunken eyes, red or mattery eyes, snotty or dry nose, droopy ears
 - Rate of breathing and in headlocks signs of eating
 - Notice breath smells ("sweet" = ketosis; foul = ingestion)

- Grab the ears for temperature. (cold = milk fever; toxic infection; fever; shock)
 - Check other animals to determine normal ear temp
 - Check for a jugular pulse (hardware)
 - Check the color of the gums if necessary (pale = shock or anemia)
2. Observations made looking down the top-line of the cow:
- Overall appearance; hair coat; BCS
 - Abdominal fill; signs of bloat; sunken flanks.
3. Observations made in back of the cow:
- Udder fill and signs of mastitis (swollen or black quarter)
 - Examine and score manure on the tail, sleeve or floor
 - 1) Dry = **DA or indigestion?**
 - 2) Plain diarrhea = **Johne's, DA or indigestion**
 - 3) Bubbly diarrhea = **acidosis or DA**
 - 4) Black & tarry = **HBS**
 - 5) Bloody or yellow diarrhea = **enteritis like salmonella?**
 - 6) No corn = **ketosis?**
 - Examine vaginal discharge on the tail, floor, while lying down or during rectal exam
 - 1) No discharge and no odor = **normal**
 - 2) Bright red turning dark brown in 10-14 DIM with no odor = **normal**
 - 3) Clear mucous with or without flecks of pus = **no problem**
 - 4) Small or large volumes of pus with no bad smell = **mild metritis**
 - 5) Small or large volume of pus with a bad smell = **metritis**
 - 6) Red-brown watery discharge; very bad smell; pieces of rotting placenta = **toxic metritis**
 - Notice fast or labored breathing.
 - Use your nose and identify the source of all "bad" odors!
 - Observe feet and legs for swelling, lameness or injuries.
 - Check the abdomen for fill or bloat; observe the flanks for fill
 - Temp all cows or at least those that receive an abnormal score from general exams
 - Check urine or blood for ketosis if necessary
4. Observations made using the stethoscope: (this skill requires one-on-one training with a vet)
- Heart rate and sound – hardware; vegetative endocarditis
 - Lung sounds – increased = pneumonia?
 - Rumen activity - 2 ruminations/minute = normal; slower = sub-clinical milk fever or indigestion
 - Displaced abomasum (right or left) = ping and slosh behind ribs
 - Cecal torsion = ping on right side in posterior paralumbar area; can feel with rectal palpation
 - Rumen gas = ping all over left side
 - Intestinal gas/indigestion = intermittent pinging on right side
5. The 2 most common fresh cow problems.

Sub-clinical milk fever

- 1) Cold ears; cold skin
- 2) Muscle tremors
- 3) Still walking; may stagger or stumble
- 4) Flaccid uterus; slow uterine involution
- 5) Retained placenta; also caused by suppressed immune response
- 6) Slow rumination; < 2 ruminations/min.
- 7) Depressed DMI; identified by decreased milk prod. or ketosis
- 8) Blood calcium 7-8 gm/dl (normal is 8.5-12; downer MF in the 2-5 range)

Metritis

- 1) After retained placenta (see above)
- 2) After assisted birth (dirty arms and OB equipment)
- 3) After twins (typically RP; great stress; DMI depression; suppressed immune system)
- 4) Dirty maternity area (increased bacterial load; pen cleaning frequency is critical)
- 5) Immune suppression (acidosis; DMI depression; social stress)

Control points for successful treatments in the fresh pen

Establish a detailed record keeping system with the animal's ID, diagnosis, and treatment used with exact dosages. Enter this data in the computer daily and print out an updated treatment sheet for the next day. It speeds up daily checks to establish a marking system on the animal to track observations and treatments. Include the calving date and use different colors and marking patterns to define general problems or simply that the animal has been checked OK. Specific treatments must be written in detail by your veterinarian. Laminate them to go cow-side. Treatments must be reviewed and evaluated for cure rates based on collected data. Your veterinarian not your fresh cow crew can adjust treatment protocols to improve results. Below are general treatment ideas with broad product categories.

- 1) *Ketosis* – oral or IV energy sources; corticosteroids; probiotics
- 2) *Acidosis/Indigestion* – oral antacids, laxatives or probiotics; antidiarrheals
- 3) *Displaced abomasum* – 5 gal. oral drench; roll stitch; surgery; energy and calcium sources
- 4) *HBS/Enteritis* – antibiotics; fluids; antacids or antidiarrheals; clostridium antitoxin
- 5) *Pneumonia* – antibiotics; corticosteroids; antihistamine; NSAIDS (flunixin meglumine)
- 6) *Diarrhea* – antidiarrheals; fluids; antibiotics?
- 7) *Mastitis* - G+ or G- = IMM; Toxic G- = antibiotics; fluids; NSAIDS; corticosteroids; IMM?
- 8) *Peritonitis* – antibiotics; NSAIDS; corticosteroids; fluids; energy sources
- 9) *Lameness* – foot trim; wrap; block; antibiotics?

Sub-clinical milk fever

- Very common, especially in 3+ lactation animals
- Leads to RP's, Ketosis and Metritis
- Early treatment is important and can include: oral or IV calcium; energy sources

Metritis

- Mild (pus w/o fever) = oxytocin
- Moderate (pus w/ odor and fever) = oxytocin + systemic antibiotic (IM or IV)
- Toxic (RP; bad smell w/ dark, watery discharge) systemic antibiotic, NSAIDS, calcium/energy sources

Intrauterine therapy-IU: Controversial! Research says the following:

RP Therapy (5 gm OTC IU daily until passed):

1. Decreased the incidence of fever 53% to 30%
2. No effect on duration of RP, ketosis, DA, mastitis, time to pregnancy
3. OTC powder has a low pH (2); can cause coagulation necrosis of endometrial lining

Just Fresh IU therapy:

1. 500 ml 2% Lugol's iodine solution – less endometritis at 30-45 DIM; no repro benefit
2. Oxytet liquid infused – less fevers; less metritis; no repro benefits
3. Pipette infusion < 10 DIM is very dangerous; perforations lead to adhesions
4. Propylene glycol based OTC = moderately irritating
5. Povidone or PVP based OTC = slightly irritating

Clinical Endometritis (defined as pus discharge > 30 DIM; includes pyometra):

1. Infusions are generally no better than 2 doses of prostaglandin (presynch protocol)
2. No repro differences between antibiotic infusions and no therapy in mild cases
3. Eliminates the risk of antibiotic residues

- IU antibiotic therapy does create antibiotic residues in the milk.
- Low levels of OTC in milk interfere with starter cultures for cheese and yogurt production
- This therapy must be a decision between you and your veterinarian.

Fever

Rectal temperature >103 is typically defined as a fever in cattle; this increases in hot weather

The normal response to an infection by warm-blooded animals

> 105.5 often indicate a viral infection

103 – 104.5 often indicate a bacterial infection

The role fever plays in a bodies defense process is not clearly understood

Probably increases the rate of antibody formation

The severity of certain infections in animals decreases when body temp is raised artificially

Only a problem when it causes DMI suppression

What works to reduce fever in cows?

Aspirin – a lack of research describing what happens in the rumen; does it work?

NSAIDS – research indicates this class of medicine can reduce fever in bovines

NSAIDS – it DOES NOT work when given IM; #1 cause of Rx medicine meat residue

NSAIDS – may not provide as many other benefits IV as previously assumed

CAUTION:

1. Using rectal temperatures ONLY to select fresh cows for treatment has problems.
2. Research shows that a percentage of normal fresh cows experience an elevated temp @ 2-5 DIM.
3. Treating every fever will greatly overuse medicines and increase residue risks.
4. The temperature level used to trigger therapy depends on:
 - a. Risk Tolerance (higher temp = greater risk of missing animals that need treatment)
 - b. The quality of personnel and their training who are treating fresh cows

A New Approach for Fresh Cow Programs:

- Use observational and diagnostics skills in addition to temperature to make treatment decisions
- Balance between daily exams of each fresh cow and only checking “off” cows
- A daily pen walk through with animals resting provides a lot of observational information
- When treatment is chosen, be aggressive. A chronic condition is much more difficult to treat
- Use your head, hands, eyes, ears and nose more and syringes less.
- Very Important – DO NO HARM!
- Use what we all had to learn during 2009..... when no one could afford to buy meds as usual!
- There is not a perfect fresh cow program but there a lot of them working very well.

Appendix Doc. 1

Standard Calving Procedure

Updated - November 2009

- A. Walk Close-up group every hour!
 - 1. ID every cow & heifer “showing the first signs of labor”.
 - 2. Record her number, the time and your initials on record sheet.
- B. Allow every animal possible to naturally deliver her calf in the straw-bedded area.
 - 1. Bring laboring animals into maternity pens only when absolutely necessary (when they need help)
- C. Assist an animal when:
 - 1. Labor exceeds 1-1 1/2 hours (cows)
 - 2. Labor exceeds 2 hours (heifers)
 - 3. Water bag has been showing for more than 1 hour
 - 4. Water bag has been broken for more than 1/2 hour
- D. If you decide an animal needs assistance, then:
 - 1. Move animal to a maternity pen (use only 2 pens for calving)
 - 2. Restrain her in the head lock, behind a gate, or with a halter
 - 3. Tie her tail out of the way (if not docked)
 - 4. Clean vulva completely with iodine scrub disinfectant and clean wash water
 - 5. Surgical scrub (with brush) your hands & arms (especially finger nails)
 - 6. Use only clean equipment; soak anything that goes in the animal in fresh, clean disinfectant
 - 7. Put on plastic gloves (both hands if needed; replace every time one tears)
 - 8. Determine fetal position (rule-out twins or uterine torsion (use lots of lube to prevent swelling)
 - 9. Correct mal-positions!!! (must be spine up, two feet, and a tail or a nose)
 - 10. Attach chains or ropes to feet (attach a cord to bottom jaw if head was back or tends to go back)
 - 11. Lubricate birth canal with J-lube or liquid lube (no J-lube if possible C-section)
 - 12. Pump 1 gallon of liquid lube dissolved in 2-3 gallons of warm water into uterus with a hose if:
 - a. It feels like it’s going to be a very hard, tight pull (especially heifers)
 - b. The calf hair feels the least bit dry (water bag has been broken too long)
 - c. The vulva is swollen (either from edema or a long time inside changing a calf position)
 - 13. Attach calf- puller (BE CAREFUL- this tool can break calf legs and paralyze cows)
 - 14. Intermittently apply tension (work with her labor; pull when she pushes; EXCEPTION: with a fat or nervous animal, it may work better to pull when she relaxes and is not pushing)
 - 15. On hard pulls, it helps to let off all tension 1-3 times during delivery
 - a. It lets birth canal tissues relax and move over the calf
 - b. It helps prevent unnecessary vaginal tearing
 - 16. To help deliver large shoulders or hips, try one of the following:
 - a. Move the end of the calf-puller from side to side, then pull down again
 - b. Lift the end of the puller up high, then swing it out and down to rotate the calf and free the hips
 - 17. Perform an episiotomy at 10:00 or 2:00 position before the vulva tears (this can be sutured)
 - 18. Always go back in with a clean sleeve and check “deep” for multiple calves!
- E. Call for assistance from herdsman or veterinarian when:
 - 1. Calf mal-position cannot be corrected with 15 minutes of trying
 - 2. Delivery cannot be completed within 15 minutes after attaching calf-puller
 - 3. Large calf or small pelvis that will require a fetotomy or C-section
 - 4. Uterine torsion-(birth canal feels twisted closed) must roll the cow or C-section
- F. When delivery is complete, wash all blood and birth fluids off cow(all the way down to udder)
- G. Process fresh animal and calf according to management procedures
- H. Clean all equipment and return to proper storage place to air dry
- I. Clean and re-bed maternity pen area that was soaked with birth fluids (add lime when calving heavy)
- J. Record all information on the correct report forms and initial it!
- K. Walk Close-up group every hour!

Appendix
Doc. 2

FRESH COW HEALTH ASSESSMENT GUIDE

OBSERVATIONS MADE FROM A DISTANCE:

- A. General Attitude**
1. Alert, bright-eyed, ears up, active, at the bunk eating **Normal**
2. Depressed, dull-eyed, ears drooping, lying down a lot **Sick**
- B. Overall Appearance**
1. Correct body score, full abdomen, concave paralumbar triangle **Normal**
2. Fat, thin, tucked-up abdomen, bloated, apple-left & pear-right **Sick**
- C. Locomotion**
1. Normal walk, straight topline, feet normal length with correct angle **Normal**
2. Limping, camel-back, pointing toe, red & or swollen foot/leg, hard to move **Sick**
- D. Breathing Pattern (non-excited animal)**
1. Rate at 30-35 breaths/min., no cough, no breathing “sounds”, head held normal **Normal**
2. Rate >40 breaths/min., coughing, loud open-mouth breathing, head out straight **Sick**
- E. Hair Coat**
1. Shiny, hair lying flat, short in summer & long in winter **Normal**
2. Dull, hair standing up (fuzzy looking), long in summer, ungroomed, topline licked **Sick**

OBSERVATIONS MADE FROM IN FRONT:

- A. Appetite**
1. At the bunk with TMR eaten, feed on the muzzle, observed eating & cud chewing **Normal**
2. At the bunk & no hole in the TMR, no observed eating, clean muzzle **Sick**
- B. Eyes**
1. Bright, moist appearing, out in normal position, whites are white **Normal**
2. Dull, dry appearing, sunken into eye-socket, whites are reddened, crusty corners **Sick**
- C. Ears**
1. Warm, erect (summer heat gives false positives) **Normal**
2. Cold, drooping (winter cold gives false positives) **Sick**
- D. Nose**
1. Moist, no discharge, no peeling skin, no open sores, TMR stuck to it **Normal**
2. Dry, cloudy or clear long discharge, peeling skin, open sores, no feed on it **Sick**
- E. Breath**
1. No “unusual” odor **Normal**
2. “Sweet” smell (ketosis), bad (foul) odor (indigestion) **Sick**
- F. Mucous Membranes (Gums)**
1. Light pink, finger pressure leaves a “white” spot for <2-3 seconds **Normal**
2. Pale or white, finger print lasts longer than 3 seconds, fingerprint doesn’t show **Sick**
- G. Jugular Pulse**
1. Cannot see the jugular vein in the standing animal **Normal**
2. Vein can be seen, it swells or pulses with every heartbeat **Sick**

OBSERVATIONS MADE FROM BEHIND:

- A. Temperature (taken pre-palpation, otherwise vaginally with a clean probe)**
1. 101-103 F (can be 1-2 higher on hot and humid summer days) **Normal**
 2. <101 or >103 **Sick**
- B. Udder Evaluation**
1. Soft, no edema, white skin is pink & smooth **Normal**
 2. Hard, pitting edema (fresh), white skin is purple/black & peeling, gas **Sick**
- C. Milk Evaluation**
1. White, smooth, no salty taste **Normal**
 2. Thick, creamy, thin, brown, chunks, clots, bloody gas, salty taste **Sick**
- D. Manure Evaluation (from palpation)**
1. Correct thickness, color & odor normal, some corn, full rectum, no large fiber pieces **Normal**
 2. Stiff, scant, watery, smelly, yellow, black, red, no corn, sand, only mucous, fibrous **Sick**
- E. Uterus Evaluation (from palpation) Odor is Critical!!!**
1. No discharge, clear mucous, red turning brown or white without a “bad” odor **Normal**
 2. Dark red to purple, bad odor, thick or thin, retained placenta or placental pieces **Sick**
- F. Mucous Membranes (Vagina)**
1. Light pink, uniform coloration, same fingerprint test as used on the gums **Normal**
 2. Pale, use the fingerprint test like on the gums, very red with tiny white pimples **Sick**

OBSERVATIONS MADE WITH A STETHESCOPE:

- A. Heart**
1. Clear, crisp beats, steady rate (60-70 beats/min) = basically 1/sec. **Normal**
 2. Dull, muddy sound, inconsistent rate (too fast or slow), murmurs **Sick**
- B. Lungs**
1. No significant sounds, slight air sounds, **Normal**
 2. Loud air sounds, squeaks, fluid gurgling **Sick**
- C. Left Side Abdomen**
1. No pings, ruminations at 2/min. **Normal**
 2. Pinging all over, pinging over rib area, ruminations < 2/min. **Sick**
- D. Right Side Abdomen**
1. No pings, occasionally some intestinal rumblings **Normal**
 2. Pinging all over, pinging over rib area, pinging in triangle, pinging intermittently **Sick**

OBSERVATIONS THAT INDICATE A “POOR PROGNOSIS”:

- | | |
|---|----------------------------------|
| A. Jugular pulse | H. Edema swelling under the jaw |
| B. Extended head and neck with mouth breathing | I. Black quarter mastitis |
| C. Loud sounds when breathing | J. Gas under the skin anywhere |
| D. Severely sunken eyes | K. Yellow diarrhea |
| E. White mucous membranes with cold ears and skin | L. Black, tarry diarrhea |
| F. Gas producing mastitis | M. Walking in a circle |
| G. Red, bloody diarrhea | N. Enlarged lymph nodes anywhere |