DEPARTMENT OF
ANIMAL & AVIAN
SCIENCES

Cattle Health Management - Calving

UNIVERSITY OF
MARYLAND
EXTENSION

Agenda

- Getting Your Farm Ready for Calving
- Common Management Techniques for a Successful Calving Season
- Strategies for When Things Go Wrong

Is Your Farm Ready for Calving?

- Farm facilities
  - Designated Calving Area
  - Chute/Head Catch
- Calving Equipment – Do you having a calving kit?
- Personnel – Who's going to be helping you? Who's your vet?

Farm Facilities

Designate a calving area

- Plan ahead: What will the weather be like? Will you be calving indoors or out?
- Clean, dry area that has limited contamination from bacteria

If outside: Smaller pasture closer to the house or barn

If Inside: Calving Barn

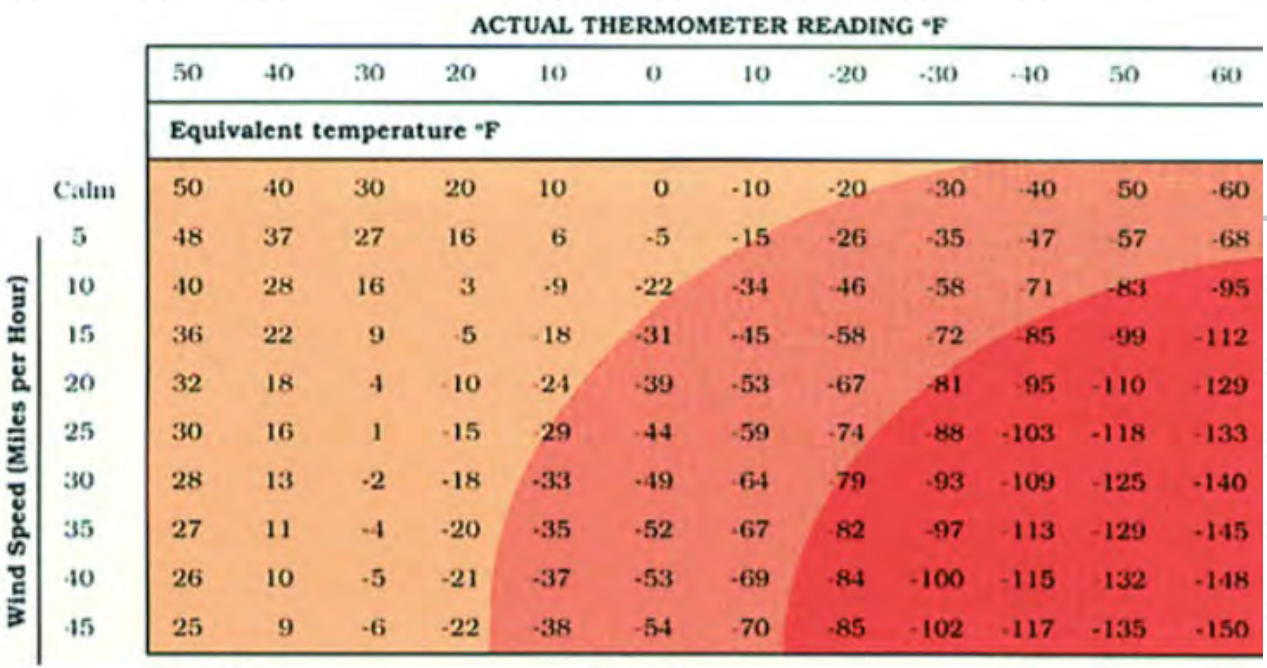
- Shelter from the elements – wind and cold
- Space for multiple cows/heifers to calve at once - Individually
- Individual pens for each pair eliminate potential mix-ups (12'x12' minimum)

- **Have a Headcatch** – this can be a full chute or a headgate that allows for safe handling of the cow/heifer.

Dealing with Mud During Calving

- **Fluffy Hair = Warmer Calf**
  - An insulating layer is formed by the tiny air pockets around each hair
  - **Muddy Hair = Chilled Calf** (matted hair losing the insulating layer
    - Chilled calves are more prone to stress and illness
- **Mud has bacteria and pathogens**
  - Calves are exposed through the cow's udder or their navel before it dries off and closes
  - Increased chance of scours and bacterial pneumonia
- **The more mud = more energy used by cow and calf**
  - 4-8" mud → 15% decrease in Feed Intake (DM)
  - 12"+ → 30% decrease in Feed Intake (DM)
  - **Lactating Cows > Gestating Cows**
    - Very hard to maintaining body condition when nursing in heavy mud
- **Bed areas you need to use outside with clean straw if you have heavy mud**

Wind Chill



Wind Speed (Miles per Hour)	ACTUAL THERMOMETER READING °F											
	50	40	30	20	10	0	10	-20	-30	-40	50	60
	Equivalent temperature °F											
Calm	50	40	30	20	10	0	-10	-20	-30	-40	50	-60
5	48	37	27	16	6	-5	-15	-26	-35	-47	-57	-68
10	40	28	16	3	-9	-22	-34	-46	-58	-71	-83	-95
15	36	22	9	-5	-18	-31	-45	-58	-72	-85	-99	-112
20	32	18	4	-10	-24	-39	-53	-67	-81	-95	-110	-129
25	30	16	1	-15	-29	-44	-59	-74	-88	-103	-118	-133
30	28	13	-2	-18	-33	-49	-64	-79	-93	-109	-125	-140
35	27	11	-4	-20	-35	-52	-67	-82	-97	-113	-129	-145
40	26	10	-5	-21	-37	-53	-69	-84	-100	-115	-132	-148
45	25	9	-6	-22	-38	-54	-70	-85	-102	-117	-135	-150

Zone 1

Little danger to mature animals

Zone 2

Increasing Danger; will freeze exposed flesh such as teats and scrotums; will stress animals causing latent diseases to appear.

Zone 3

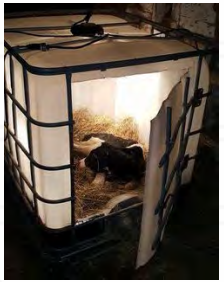
Great danger especially to young animals.

Adapted from John Herrick, Iowa State University, Extension Veterinarian

Warming a Newborn Calf

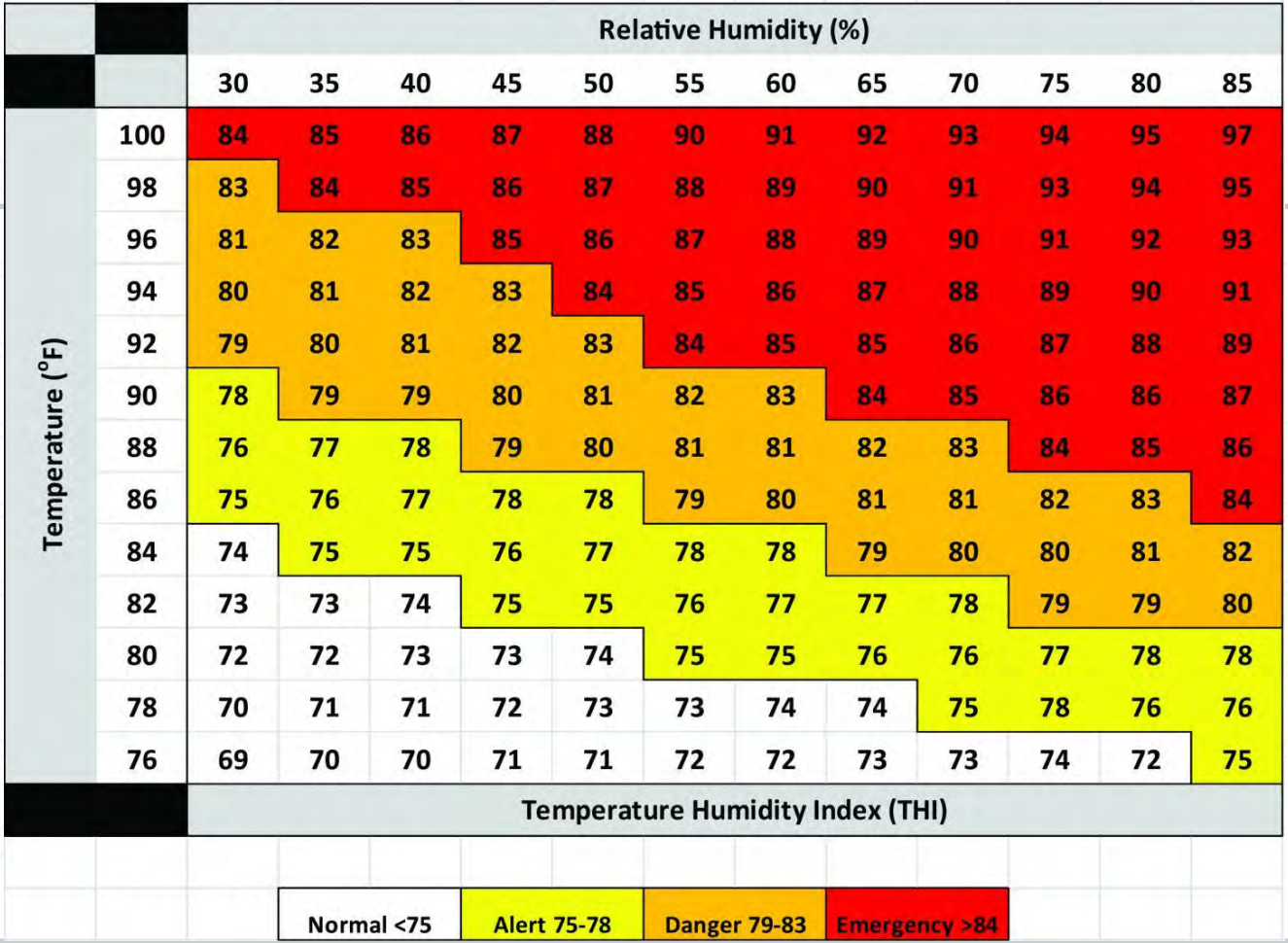
Normal Temperature for Calves is 101-102°F
Hypothermia is anything below 100° F

- **Using a vehicle**
  - Place on near floorboard heater – can take up to an hour to warmer
- **Take Them Inside**
  - House, heated shop, barn or shop with heat lamps
    - Completely dry the calf using towels and/or hair dryer than cover with blankets
- **Using a Hot Box**
  - Commercial or homemade
    - Key is heat lamps and fans to circulate the warm air



- **Using Warm Water Immersion**
  - Use your bath tub and WARM water NOT HOT (100°) – If the water is too hot, you can cause heart failure through cold shock.

Heat Index



Temperature (°F) \ Relative Humidity (%)	30	35	40	45	50	55	60	65	70	75	80	85
100	84	85	86	87	88	90	91	92	93	94	95	97
98	83	84	85	86	87	88	89	90	91	93	94	95
96	81	82	83	85	86	87	88	89	90	91	92	93
94	80	81	82	83	84	85	86	87	88	89	90	91
92	79	80	81	82	83	84	85	85	86	87	88	89
90	78	79	79	80	81	82	83	84	85	86	86	87
88	76	77	78	79	80	81	81	82	83	84	85	86
86	75	76	77	78	78	79	80	81	81	82	83	84
84	74	75	75	76	77	78	78	79	80	80	81	82
82	73	73	74	75	75	76	77	77	78	79	79	80
80	72	72	73	73	74	75	75	76	76	77	78	78
78	70	71	71	72	73	73	74	74	75	78	76	76
76	69	70	70	71	71	72	72	73	73	74	72	75

Temperature Humidity Index (THI)

Normal <75	Alert 75-78	Danger 79-83	Emergency >84

Building Your Own Calving Kit

- Ear tags and tagger
- Halter and rope
- Disposable Ob/Breeding Sleeves
- Disposable gloves
- 2 Stainless steel buckets (Plastic can crack, develop holes)
- Lube (squeeze bottle for easier handling)
- Disinfectant (Nolvasan or Chlorhexidine)
- Clean Ob chains and handles or Nylon Calf Strap
- Flashlights with extra batteries (Batteries drain faster in colder weather)
- 7% tincture Iodine for dipping the calf's navel
- Bottle and lamb nipple in case you have to feed the calf
- Stomach tube feeder
- Alarm Clock with extra batteries
- Towels and/or hair dryer in case you need to dry the calf

Recommended Sources:

- Valley Vet: valleyvet.com (usually ships within 1-2 days)
- Southern States Cooperative
- Tractor Supply

Personnel – Who's Helping Calve?

- **Who's your vet?**
  - Make sure you have a good relationship with your Vet
    - Veterinarian – Client – Patient - Relationship (VCPR)
    - **Keep their number handy in your calving kit**
- Who's helping you calve?
  - Do they know where you keep your calving supplies? Do they know how to use them?
  - Are they familiar with your farm's set up – designated calving area, where gates are?
  - Are they familiar with your cattle? Are your cattle familiar with them?

Questions?

What is Successful Calving?

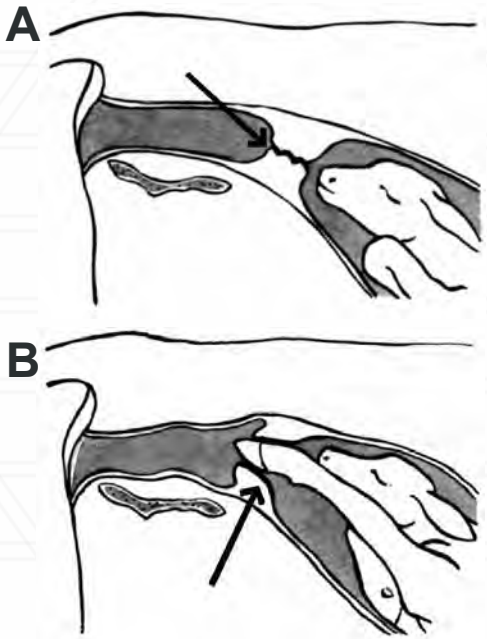
- "Normal Calving"
  - What to Expect with each Stage of Labor
- Calving Prep Tips
- Patience.

What is “Normal Calving”

- The actual process of calving covers 3 stages and can last up to 20 hours – length varies between cows and heifers
  - Stage 1: Preparatory Stage (2 to12 hours)
  - Stage 2: Expulsion of the Fetus – Delivery of the Calf (60 minutes to 4 hours)
  - Stage 3: Expulsion of the Placenta (1 to 12 hours)

Stage 1: Preparatory (Cows 2-8hrs, Heifers 4-12hrs) – Calf is prepping to enter the birth canal.

- **What's happening inside**:
  - Fetal cortisol (stress hormone) starts a chain reaction causing Uterine contractions.
  - As uterine pressure increases, the fetus rotates so front feet and head are positioned at the cervix
  - Uterine contractions increase, pushing the fetus toward the dilating cervix – allowing for the fetus to enter the birth canal.
- **What to look for**:
  - Signs of discomfort – restlessness, arching of the back, slight straining, kicking at the belly
  - Cows will separate themselves from the herd and urinate more frequently
  - Fully alert, may still eat, drink and otherwise behave normally
    - **Stage 1 ends with expulsion of the water bag.**



A. Beginning of stage 1 – cervix is closed. B. Dilation allowing the fetus to enter the birth canal. Oregon Calving School Handbook, 2008

Stage 2: Fetal Expulsion (Cows 60 minutes, Heifers 1-4hrs) – Delivery of the Calf

- **What's happening with the Cow/Heifer**:
  - Fetus in the birth canal puts pressure on the cervix and induces the reflex to push – visible abdominal contractions
  - Pressure of feet and head in the birth canal results in rupture of water bag – helping lubrication
  - Contractions strengthen and cows may lie down to cope with pain and discomfort
- **How delivery progresses for the calf:**
  - Front Feet – **Soles of feet should be <u>facing down</u>**
    - Abdominal contractions become more frequent and intense.
      Progress may slow down for a few minutes to allow vulva to stretch
  - Nose
  - Rest of the Head
  - Shoulders
  - Chest
    - Mucus may come out of the calf's mouth and nostrils
      this clears the respiratory passages for normal breathing
  - The Rest of the Calf
    - Within 10 minutes, the cow should be standing and licking off the calf. Calf should be working on standing within 20-30 minutes and nursing within 60 minutes post-birth.

Stage 3: Expulsion of the Placenta (1-12 hours)

- The placenta should detach from the uterus almost immediately after the calf is delivered
  - Cotyledons (buttons) on the placenta separate from the caruncles on the uterus
- Contractions expel the placenta from the cow
  - Expulsion can be delayed because of fatigue, but it isn't considered retained unless its over 12 hours

Calving Prep Tips

- Konefal Method (Named for Gus Konefal a Canadian Rancher)
  - Study by the University of Iowa found that feeding once a day at dusk (between 4-6pm) 85.28% of calves were born between 6am-6pm
- Maintain Detailed Calving Records
  - Information to maintain: Due Date, Sire, Actual Calving Date, Time of Day She Started, Time Water Broke, When Feet Appeared, Delivery Complete (How Long it Took), Sex of Calf, Anything Abnormal, Notes
  - Will help in future years to know what's "normal" for each animal
- Make sure your calving area is ready (if indoors) and your calving kit is clean and equipped for the upcoming season.

Patience:

These things take time – let them.
Continued progress is progress.

Questions?

Its not “IF”, but “WHEN” problems occur.

- Pre-partum Issues
- Dystocia
  - Why do difficulties happen?
  - When to intervene
    - Abnormal Presentations
  - Using your calving tools
- Post-partum Issues
- Post-natal Issues

Pre-partum Issue – Vaginal Prolapse

- What is it: the tissues around the birth canal in late pregnancy have become relaxed and there is increased pressure in the abdominal cavity that pushed on the vagina when the cow is lying down. The condition will worsen as the pressure increases.
  - Issues: Impaired blood circulation can lead to impaired tissue, swollen tissue is vulnerable to injury. If the bladder is part of the prolapse, the cow won't be able to urinate until the prolapse is replaced. The bulging tissue can also impede delivery of the calf, resulting on death of the calf and further injury to the cow
    - The longer the tissue is left outside, the more swelling will occurs the harder it will be to replace the prolapse.

- Causes: Structural weakness of the repro tract (most common in Herefords, Simmentals and Charolais), Inherited problem from Dam or Sire, too much fat, older cows
- Treatment: Contact your vet to replace the prolapse – the vulva will need to be stitched to prevent recurring prolapse.
- Prevention: Cull any cows that prolapse as well as any daughters of the Dam (or sire), watch the body condition of your cows, particularly leading up to calving

Dystocia – Potential Causes?

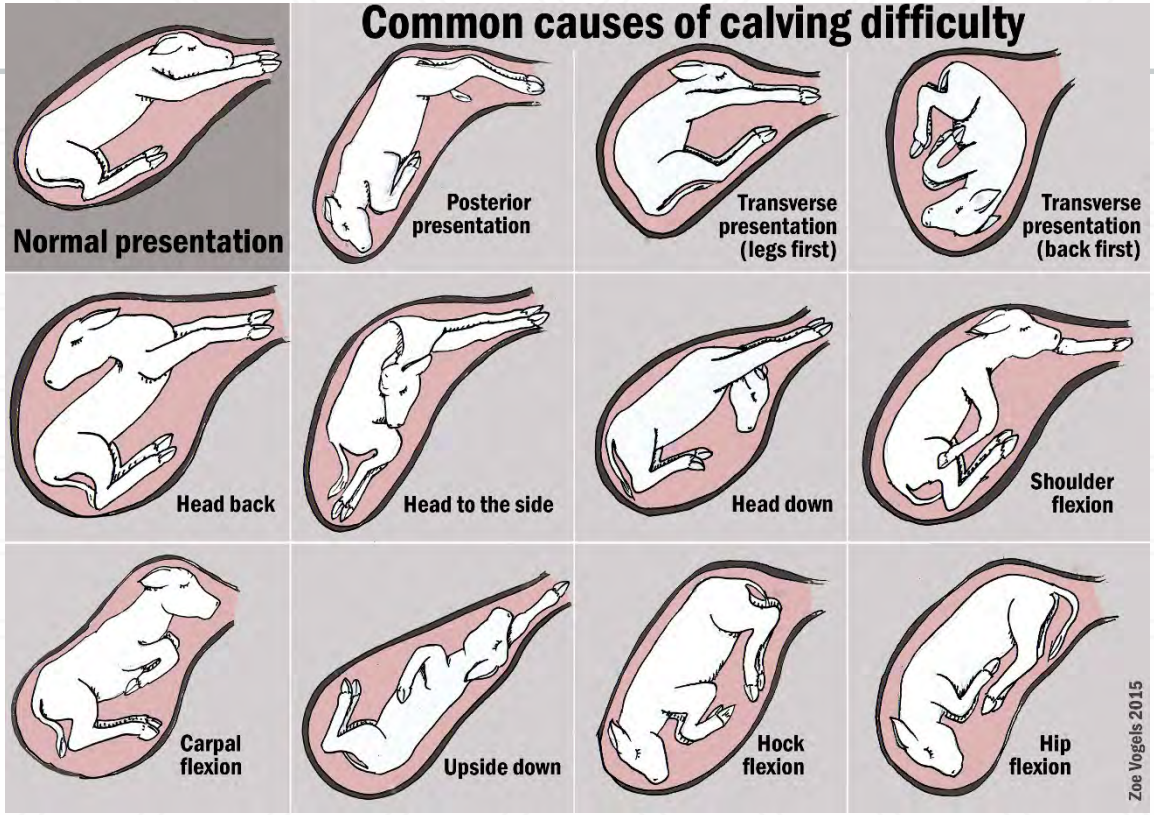
- Dystocia: Delayed or Difficult Birth.
  - Up to 10% of calves born in Beef herd in the US die at or soon after birth – 50% are due to dystocia
  - 80% of calves lost at birth are anatomically normal. Most die because of injuries or suffocation from difficult or delayed calving.
  - Factors Contributing to Calving Problems:
    - Calf Effects
      - Heavy birth weights (Influenced by breed, sex, age of dam, nutrition of cow)
      - Shape of calf
    - Cow Effects
      - Age (first calf heifers require more assistance because they're smaller)
      - Pelvic Area (Increases as the animal matures – majority of the calving issues with 2-3 year olds is due to small pelvic size
    - Fetal Position at Birth

Calving: When to Intervene (help)

Don't intervene TOO Soon – Make sure the cervix is dilated before attempting to pull a calf – The cervix is programmed to relax and dilate fully as the top of the calf's head presses against it with each contraction – hard steady pulling can actually delay the process

- Cow/Heifer is off by herself and restless for more than 6-8 hours with no visible signs of labor
- The cow/heifer has been straining hard for more than one hour and either no calf is showing or the calf's feet are showing when she strains but go back inside when she rests
- Yellow-brown fluid (meconium) is present in the amniotic sac or in the vaginal discharge.
- The feet of the calf are upside down (bottoms of the feet are up instead of down) or only one foot is showing
- The calf's birthing progress has halted altogether

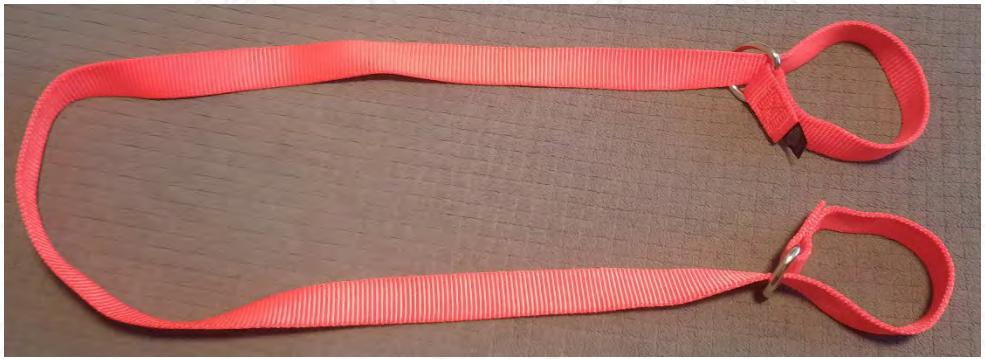
Abnormal Presentations



Assisting with Calving – Pelvic Exam

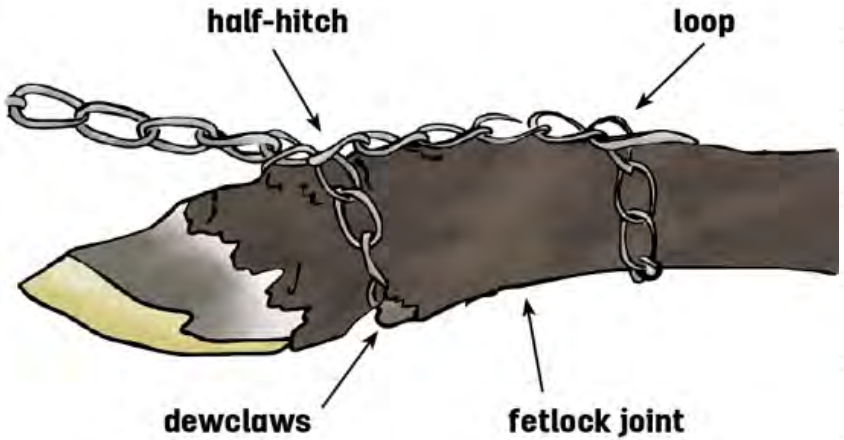
1. Make sure you, whoever is helping you and all your equipment is clean – introduction of bacteria on equipment can cause complications down the road
    1. Equipment to have ready: bucket clean water and one with water and disinfectant, ob lube, paper towels, calving chains and handles or straps, plastic sleeves and disposable gloves (Have chains and handles or straps in the disinfectant water)
2. Restrain the cow in a head catch or chute
3. Clean and dry the anus, vulva and tail with soapy water and paper towels
4. Put on plastic sleeves or disposable gloves. Apply ob lube to sleeves/gloves – this will help you work in the cow while you complete a pelvic exam to determine dilation and fetal positioning
    1. Pelvic Exam:
        1. Determine cervical dilation (is there enough space for the calf to get out) – do not try and pull before she's dilated
        2. What is the position of the calf (normal or abnormal)
        3. What is the size of the calf (large calf, small pelvis)
        4. Is there enough lubrication in the birth canal (DO NOT USE SOAP, it will cause inflammation, use only lube or Vaseline)?
        5. This is where you may need to call your vet

Different Types of Pulling Aids

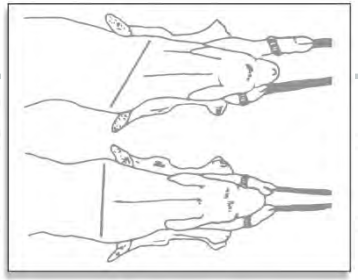


How to: Ob Chains

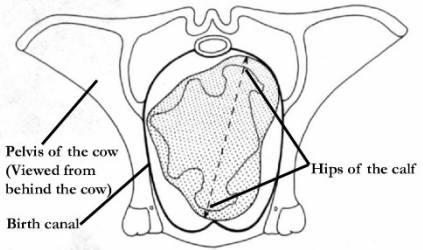
- Put one end of the Ob chain through the other to form a loop
- Slide the loop around the leg, past the hoof, above the fetlock joint
- Gently cinch down on the chain to tighten it around the leg
  - Pulling at this point with just one loop can result in a broken leg or fetlock joint
- Lay one hand flat across the chain that's extended out of the cow – make a simple fold of the chain toward the leg – creating a second loop or half-hitch.
- Slide half-hitch loop on to the calf's leg below fetlock joint and above the hoof
- Cinch the second loop down so it is tighten around the leg
  - Two loops allow the pressure to be spaced across a larger area, including on the chain its self, resulting in less damage to the legs of the calf



Assisting with Calving – Pulling the Calf



1. Attach the ob chains or calf strap – make sure to alternatively pull one leg at a time to “walk out” the shoulders through the pelvis opening one at a time
    1. Shoulder lock – This can happen when pulling both legs at the same time and both shoulders try to go through the pelvis opening at the same time and become “locked”
2. The greatest chance for uterine or cervical cuts or tears is when the calf’s head and shoulders travel the birth canal – pressure helps dilate the birth canal, apply pressure when pulling slowly – maintain continue pressure, but try to only pull when she pushes
3. When the head and shoulders are out, rotate the calf a quarter turn to help get their hips through the pelvis – if this didn’t help further delivery, pull the calf at a downward 45-degree angle (nearly parallel with the rear legs of the cow)
    1. Hip Lock – When the hips of the calf get stuck in the pelvis of the cow. Push the calf back into the cow a short distance (this will not be easy) and rotate the calf a quarter turn. Apply pressure with your chains or straps towards the cow’s flank or side



Maximum pressure a cow can handle is 400lbs (two grown men can apply 400lbs of pressure when pulling – a calf jack can apply 1200lbs and a come along 2000lbs. DO NOT USE A CALF JACK UNLESS YOU HAVE BEEN TRAINED BY YOUR VET

Post-partum Issues: Retained Placenta

- **Cause**: Failure to detach from the uterine walls – common with difficult births, multiple births and short gestation (also can indicate a disease problem)
- **Effect**: Serious health threat to the cow with uterine infections, complications with rebreeding.
- **Treatment**: If no sign of abnormal discharge, good appetite, and good milk production (calf is thriving) No treatment, just wait it out. If antibiotic boluses are required, make sure equipment is thoroughly cleaned so as not introduce more bacteria – boluses have been shown to reduce fertility.

Post-partum Issues: Uterine Prolapse

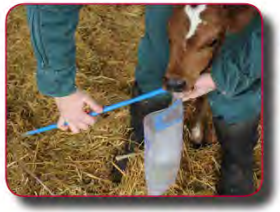
- **Cause**: partial vacuum is formed in the uterus which can be caused by pulling the calf too quickly
- **Effect:** If not treated promptly and correctly the cow can die.
- **Treatment**: Contact your vet for treatment and medication.
- **Prevention**: Encourage standing soon after delivery to reduce the chances of it occurring
  - Cull cows or heifers who prolapse as they have an increased probability of repeat occurrence

Post-natal Issues: Dehydration

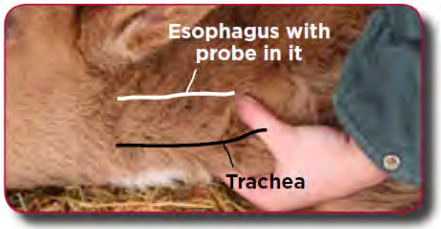
How to Check Levels of Dehydration

- Mildly dehydrated (less than 1% body weight in fluid loss) – warm feet, when pinch the skin on the neck is quickly springs back into place
- 2-5% dehydrated – take 3-5 seconds for skin to sink back into place, dry gums (instead of moist)
- 8% dehydrated – takes 5-8 seconds for the skin fold to return. Legs and feet will be cold and eyes will seem sunken
- 9-12% dehydrated – takes more than 8 seconds for skin pinch to sink back, eyes will be quite sunken
- More than 12% dehydrated – takes longer than 10 seconds for skin to go back, eyes will be sunken, gums will be white. Calf will be in shock and near death

How to: Stomach Tube Feeder



1. Fill the calf feeder bag or bottle with fluid (colostrum, milk, electrolytes, etc.).
2. If using a calf feeder bottle, attach the probe to the bottle. (If using a calf feeder bag, the probe or tube will already be attached.)
3. Make sure the tube is clamped off directly underneath the bag or bottle so there is no liquid in the probe.
4. Restrain the calf by backing it into a corner and place its head between your legs. You should be facing the same direction as the calf.
5. Moisten the tip of the probe with the fluid so it will slide easier.
6. Insert finger into the corner of the calf's mouth to open it gently.
7. Gently insert the tip of the probe into the calf's mouth and over the tongue.
8. Continue to slowly slide the probe to the far left of the calf's mouth. Keep the bottle or bag below the calf's head to ensure that no fluid comes out.
9. The calf will likely struggle a little while you are inserting the probe. If the calf coughs or struggles fiercely, then pull out the probe and try again.
10. Feel for the trachea or wind pipe. It will be a slightly firm tube on the bottom of the calf's neck. *This is where you* ***DO NOT WANT*** *the tube!* The calf's esophagus will be directly above the trachea and towards the calf's left side.

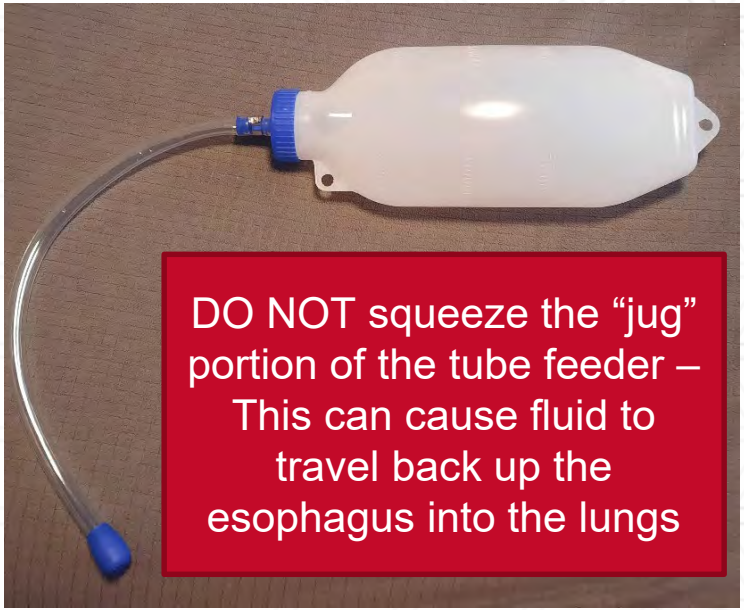


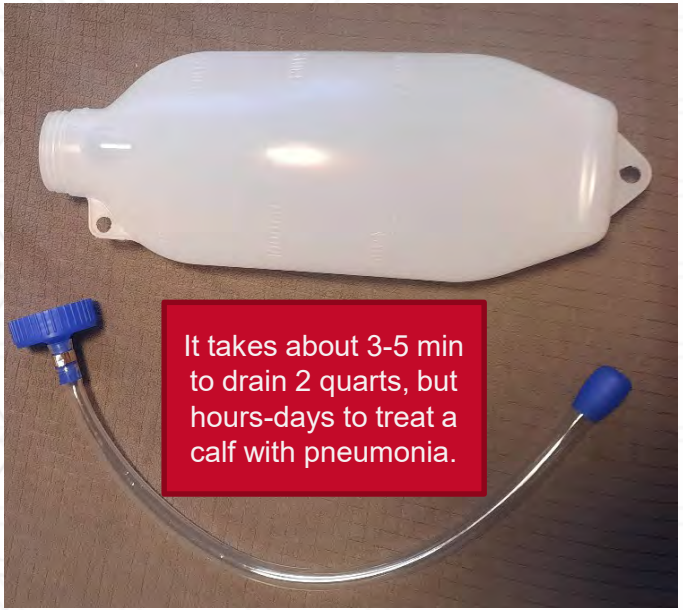
11. Feel for the probe moving in the calf's neck. If you have the probe correctly placed in the esophagus, then you will feel two "tubes"; one is the trachea, the other is the probe in the esophagus. Move the probe in and out to make sure you can feel it moving outside of the trachea.

If you only feel one tube or you can't feel the probe moving back and forth, you are in the trachea. You MUST slowly pull the probe out and try again! If you give fluids in the trachea, the fluids will go directly into the lungs and kill the calf.

12. Once you are sure you have the probe in the calf's esophagus, elevate the calf's head and the bag or bottle.
13. Un-clamp the tube and allow the liquid to drain in. **DO NOT** squeeze the bag or bottle!
14. Make sure the calf is still breathing while you are giving the fluids.
15. Once the bag or bottle is empty, re-clamp the tube.
16. Slowly pull the tube and probe out.

How to: Stomach Tube Feeder





**Remember to use lubricant on the tube and keep the calf’s head level

Post-natal Issues: Getting a Newborn Calf to Breathe

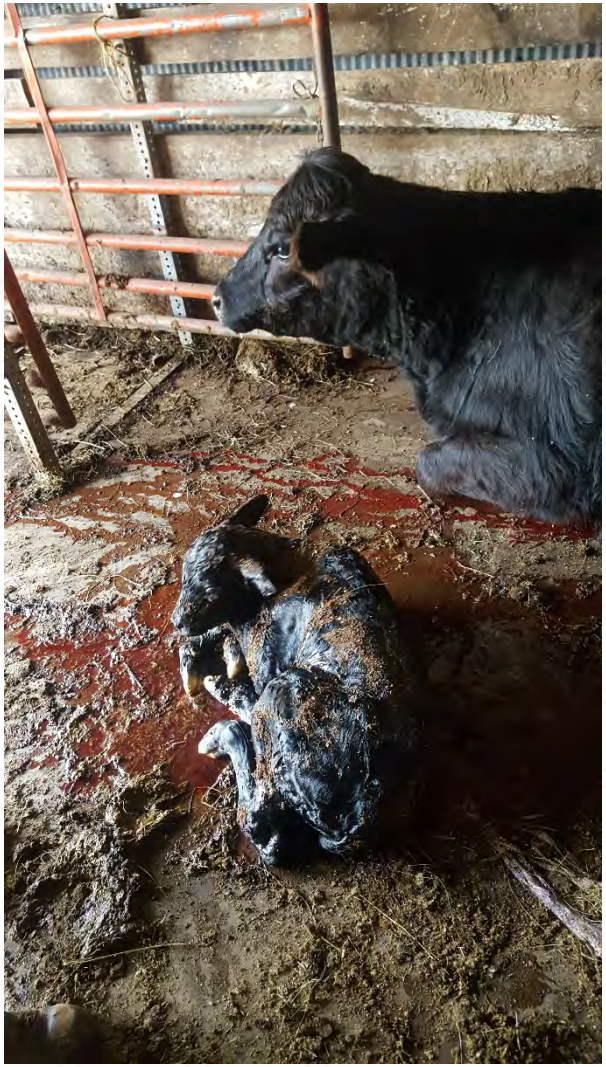
Stimulating Breathing

- Once the calf is delivered, clear any mucus from the calf's mouth and throat with you hand.
- Stimulate breathing by either rubbing it briskly or tickling the inside of the nostril with straw.
- If possible, hold the calf up with it's head hanging down to help the mouth and nasal cavity drain

Artificial Respiration

- Place a short section of garden hose into one nostril
- Hold mouth and nostrils shut so air enters and leaves through the hose
- Alternatively blow into the hose and allow expiration of air
- Repeat at 5 to 7 second intervals until the calf begins to breathe
- Another method: alternative compressions on the rib cage

Questions?



Contact Information

COLLEGE OF AGRICULTURE & NATURAL RESOURCES

Racheal Slattery
301.405.1392
rslatt@umd.edu

Jeff Semler
301.791.1304
jsemler@umd.edu

Sarah Potts
301.432.2767
sbpotts@umd.edu