

## Best Practices for Calving Assistance

H. Momont  
University of Wisconsin-Madison  
harry.momont@wisc.edu

## Why it matters

- Prevalence estimates for dystocia in Holstein heifers range from 30-50%
- Dystocia costs you money
  - Dead calves
  - Lower fertility
  - Illness in calf and cow
  - Less milk
  - Veterinary bills

## Maximizing normal births

- An ounce of prevention is worth a pound of cure (Benjamin Franklin).
- Prevention requires basic knowledge and a commitment to the long view

## This is not the answer!



## Goal for Every Calving is Eutocia - Normal Birth

- Calf is appropriate size
- Calf is normally situated
- Dam is capable of normal uterine and abdominal contractions
- Dam has normal birth canal

## Calving Environment

- Sanitary (clean and dry)
- Good footing
- Roomy
- Quiet
- Conveniently located for observation and assistance
- Ideally, separated from cows



## Feto-maternal/pelvic disproportion accounts for the majority of heifer dystocia (FMD/FPD)

### Calf birth-weight

- Gestation Length
- Gender
- Sire
- Breed
- Nutrition

### Heifer pelvic size

- Age
- Breeding Weight (nutrition)
- Body Condition (nutrition)

## Did I mention nutrition?

- Take a professional approach to feeding heifers to reinforce the long view
  - Quality feeds
  - Formulated and tested ingredients
  - Only healthy animals
  - Monitor the results!
    - Withers and hip height
    - Heart girth
    - Calf weights
  - Know the benchmarks for your breed and cow size

## “General” Guidelines for Holstein Heifers

### First Breeding

- 13 months
- 875 pounds
- Withers height – 50 inches

### First Calving

- 22-24 months
- 1250 pounds
- Withers height – 55 inches

## Calving Ease Scores: A tool for long-term dystocia prevention strategies

Score	NAAB Dairy	Alternative Simplified System
1	No problem or unobserved	No assistance
2	Slight problem	Minor assistance (one person)
3	Needed assistance	Hard pull/C-section
4	Considerable force	
5	Extreme difficulty (mechanical pull or c-section)	

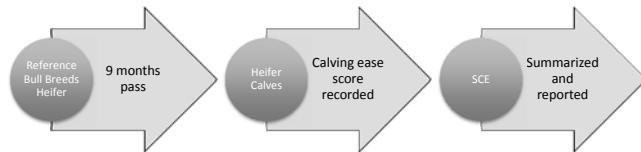
## Calf Mortality Related to Calving Ease Score

CE Score	Heifers % Dead	Parity 2-3 % Dead
1	6	4
2	14	14
3,4,5	28	27

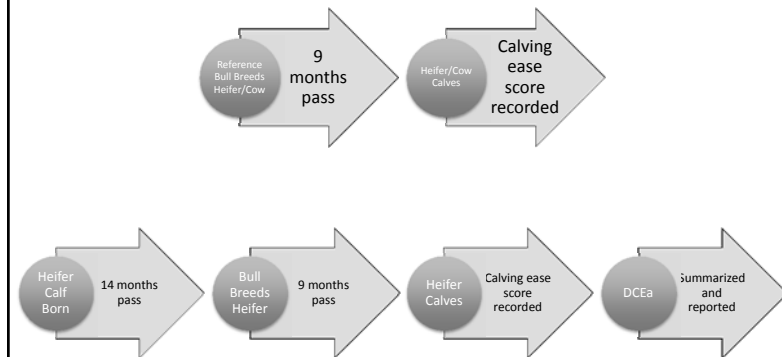
## Calving ease as a selection trait in dairy cattle

- Service Sire Calving Ease – the expected percentage of difficult births in first-calf heifers (scores of 4 and 5); this is a sire-of-calf effect and the Holstein breed average is approximately 8% (heritability=16%)
- Daughter Calving Ease – the cows ability to deliver a calf easily and her propensity to gestate a calf that is born easily (same scoring as above); this is a sire-of-cow effect on calving ease (heritability=10% and of course it is more slowly generated and poorly monitored)
- These two traits are not necessarily correlated
- **Which one is more important to you?**

## SSCE (Cooperating Herds)



## DCE (Cooperating Herds)



## How to use this information

- Select bulls based on an economic index (e.g., NM or TPI)
- Use DCE as a secondary selection criteria to improve herd calving performance over time
- Preferentially use bulls with a better (low) SSCE score on heifers

## Consider Using Sexed Semen

- Up to 95% heifer (smaller) calves
- More costly
  - Higher semen cost
  - Lower conception rates (about 20% lower)

## Preventing Stillbirths (Death Within 48 Hours of Birth)

- Target rates below 6-8%
- Prevent dystocia
- Avoid long and short gestations (<275 or >289 days)
- Avoid young and old heifers at first calving (<22 or >26 months)

## Stillbirth Scoring System (NAAB)

Status of Calf	Score
Alive	1
Dead at birth	2
Dead within 48 hours	3

## Take Home

- Commit to a plan to prevent dystocia in your heifers
  - Monitor the plan
    - Calving ease and stillbirth score recorded for all heifer deliveries
    - Confirm herd progress or re-evaluate the plan

## Managing Dystocia in Dairy Heifers

## First Stage Labor

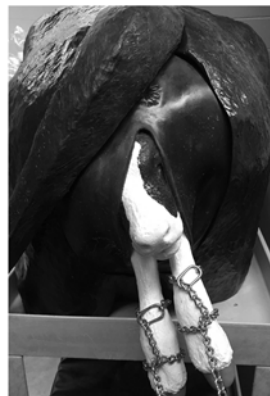
- Characterized by uterine contractions and cervical dilation
- Calf is positioned for birth
- Duration and intensity vary widely
- Restless, tail up, off feed, leaking milk

## Second Stage Labor

- Active expulsive efforts of uterine and abdominal muscles mediated by massive oxytocin release as the calf enters the vagina
- Usually coincides with rupture of the allantochorion (water bag) and appearance of membranes or feet at the vulva
- .5-1 hr in multiparous cows
- Up to 4 hours in heifers
- Ends with delivery of the calf

## Orientation of the Calf

- Head first and aligned with the heifer
- Upright in the heifer
- Both forelimbs, head, and neck extended



## Third Stage Labor

- Detachment and expulsion of the placenta
  - Considered retained after 12 hr
  - Initial uterine involution

## Dystocia (Difficult Birth)

- Causes
  - Fetal-maternal disproportion (heifers)
    - Age of dam, fetal sex, nutrition, genetics
  - Maternal
    - Uterine inertia (primary or secondary) or deficient abdominal press
    - Abnormal birth canal (trauma, fat, fractures, torsion)
  - Fetal
    - Improper orientation of the fetus (multiparous cattle)
    - Fetal anomalies
    - Prolonged gestation
    - Twins
    - In vitro fertilization and culture

## The WHO, WHEN, WHERE and WHAT of Calving Assistance



## WHO

- Trained personnel following established protocols
- Available 24-7



## WHEN

- Whenever a problem is apparent
  - Excessive straining or hemorrhage, abnormal odor or appearance to membranes, more or less than 2 feet, or 2 feet and no head
- Whenever delivery is delayed
  - 1st stage > 6 hr
  - 2nd stage > 2-3 hr
  - No progress after 30-60 minutes of 2<sup>nd</sup>-stage labor

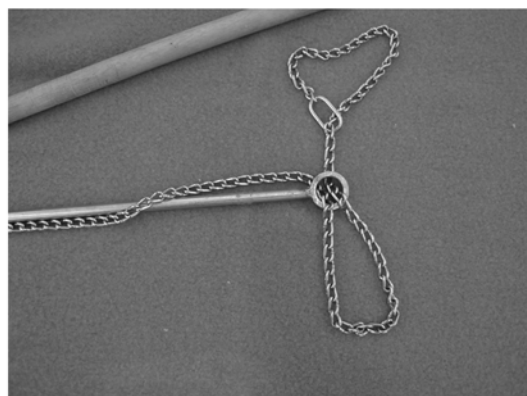
WHERE



WHAT



Detorsion Rod



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## Principles of Bovine Obstetrics

- 1. Sanitation
  - Have plenty of warm water and disinfectant soap
  - Wear sleeves
- 2. Lubrication
  - Water based methyl cellulose or powdered lubricants
- 3. Repulsion
  - Required if there is a retained head or limb

## Principles of Bovine Obstetrics

- It's an emergency but you don't need to rush
- Weak abdominal press and slow separation of fetal membranes
- Calf can survive for hours if umbilical cord is functioning
- Cows rarely traumatize themselves
- Always determine the number and orientation of calves

## Management of Dystocia

- Controlled Vaginal Delivery (Forced Extraction) is your goal
- Fetotomy and C-section reserved for trained professionals

## Assessing Size for Vaginal Delivery

- Guidelines for forced extraction during second stage labor:
  - Normal head-first orientation
    - 2 people pulling
    - Fetlock out 4 in
  - Backwards delivery
    - 2 people pulling
    - Hocks at vulva



## Know When to Quit

- Obvious trauma has occurred
- Excessive hemorrhage
- Half-hour rule – If no progress in 30 minutes, call for help

## Calf Care

- Assume dystocia calves need help
- Normal calves:
  - Are upright within minutes
  - Stand within an hour
  - Actively suckle by 2 hours
  - Maintain a normal body temp. (100-102°F)

## Calf Resuscitation

- Stimulate breathing
  - Straw in nose
  - Ice water
  - Briskly rub or dry calf
  - Prop upright
- Keep calf warm
- Feed colostrum

## Take Home

- Working with your veterinarian:
  - Create written protocols for providing calving assistance
  - Provide training for personnel working in the calving environment
    - Problem Recognition
    - Basic Calving Assistance Techniques
    - Calf Resuscitation Techniques