Biosecurity

BIOSECURITY IN CALF MANAGEMENT (Birth to Weaning)

This Biosecurity information has been reviewed and approved by:

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What is Biosecurity?

Management practices that prevent the introduction or spread of disease on the farm.

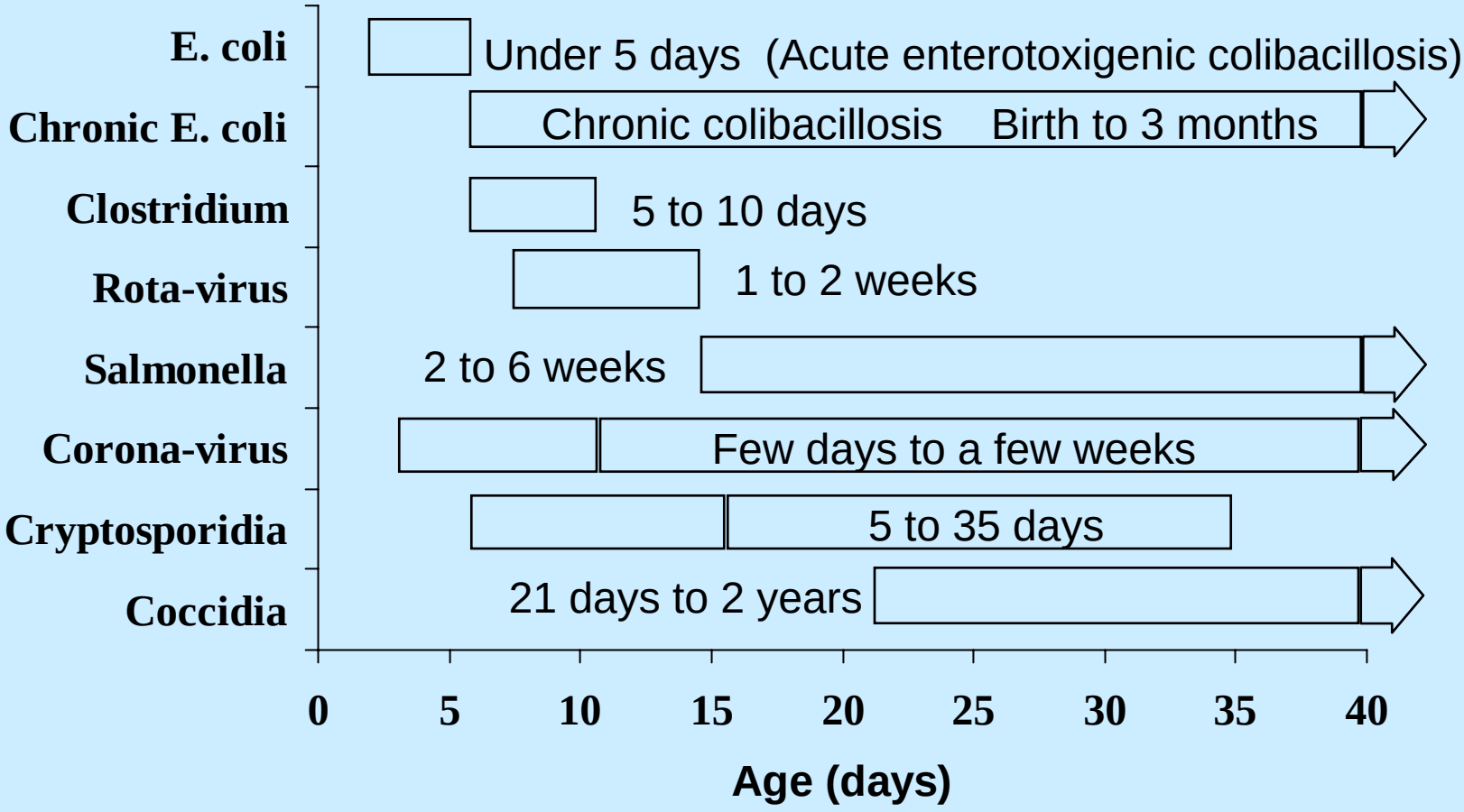
Why Should Biosecurity Be a Concern with Young Calves?

Of all the animals on the dairy, the calves are the most vulnerable to infection and disease.

What are the Challenges?

- Disease threats associated with calf scours and secondary infections (i.e. respiratory problems).
- Primary biosecurity and health challenges faced by calves and how they are transmitted.

AGE DISTRIBUTION OF ENTERIC DISEASES IN CALVES



Dedrickson 1993

Methods of Transmission to Pre-Weaned Calf

Disease/Pathogen	Fecal/ Oral	Fecal/ Navel	Milk[1]	Nasal/ Saliva	In Utero
E-Coli	X	X			
Clostridium	X				
Rota & Corona Virus	X				
Cryptosporidia	X				
Coccidia	X				
Johne's Disease	X		X		X
Salmonella	X		X	X	X
Bovine Viral Diarrhea (BVD)	X		X	X	X
Bovine Leukosis Virus (BLV)[4]			X		X
Mycoplasma Bovis[2]			X	X	
Infectious Mastitis[3]			X	X	

[1] "Milk" is defined as colostrum or non-pasteurized transition, whole or waste milk.

[2] Causes mycoplasma pneumonia, swollen joints, and inner ear infections.

[3] Caused by mycoplasma bovis, staph aureus or strep. ag.

[4] Blood borne transmission is an important means of the spread of BLV.

What is the Significance of the 6 Diseases that can be Transferred via Colostrum and Non-Pasteurized Transition, Whole or Waste Milk?

Disease	Significance
Johne's Disease	♦ Calves most susceptible to infection. ♦ Clinical signs will not appear for 2-5 years; during which time the animal may be shedding the disease organism. ♦ NAHMS Dairy '96 national study indicated that at least 22% of dairy herds are infected. ♦ Estimated cost to a heavily infected 100-cow dairy (≥ 10% or greater of cull cows show clinical signs): $23,000 due to lost milk production & replacement costs (NAHMS Dairy '96)

Disease	Significance
Salmonella	♦ Severe scours, potentially fatal. ♦ Estimated that at least 28% of dairy herds have 1 or more cows shedding the organism. (NAHMS Dairy ’96)
Bovine Viral Diarrhea (BVD)	♦ If exposed in utero, the calf may be persistently infected (PI) and will serve as a reservoir for infection of other animals in the herd. ♦ Could cause calf scours or pneumonia if calf is fed colostrum or non-pasteurized whole or waste milk from a PI cow.

Disease	Significance
Bovine Leukosis Virus (BLV)	♦ Estimated that 89% of all dairies have cattle seropositive for BLV. (NAHMS Dairy ’96) ♦ Causes malignant lymphoma in .1-5% of infected cattle and is invariably fatal.
Mycoplasma Bovis	♦ Leads to pneumonia, swollen joints and inner ear infections.
Infectious Mastitis (from Mycoplasma, Staph. Aureus or Strep. Ag.)	♦ Heifer could freshen with mastitis. ♦ Potential for lost milk production.

GOOD NEWS!

The basic management practices for the prevention of all of these diseases in the calf are similar. Following are the critical periods and the key management steps that impact the health and biosecurity of the pre-weaned calf.

DRY PERIOD

- Allow an adequate period of time (minimum of 6 weeks), for the cow to replenish her reserves and store the level of antibodies in the colostrum necessary for protecting the calf.
- Role of Dry Cow Vaccination
  - Protects the calf from diseases that could be transferred across the placenta.
  - Helps produce high quality colostrum to help prevent key calf-hood diseases.
  - Should take into account any specific health problems that are present on the dairy.

CALVING AREA (MATERNITY PLAN)

- The maternity pen is the highest priority area.
  - Clean and dry.
  - Used by one animal at a time.
  - Able to be cleaned and disinfected between uses.
  - Not a hospital pen.
  - Separate from cows and other older animals.

BIRTH

- Colostrum feeding and management.
  - Quantity, quality and timing of colostrum feeding are critical to protecting the newborn calf.
  - Know the health status of the dam
    - Do not use colostrum from cows that are known Johne's, BLV or BVD-PI positive.
  - Separate the calf from the dam as soon as possible.
    - Don't assume that the calf is getting an adequate amount of colostrum if left with the mother.

BIRTH (Continued)

- Delaying first milking by more than one hour will lower colostrum quality.
- Feed first feeding of colostrum as soon as possible (ideally within one hour of birth).
- Feed at least three quarts of colostrum in the first feeding and again 12 hours later.
- Use a clean and sanitized esophageal feeder if the calf will not consume a sufficient amount of colostrum.

BIRTH (Continued)

- Use only good quality colostrum.
  - Measure colostrum quality with a colostrometer before feeding.
  - Do not feed thin, watery colostrum, especially from a heifer.

BIRTH (Continued)

- Save good quality colostrum by freezing in four-quart zip lock bags.
  - Remove excess air and freeze laying flat; this will allow for easier thawing.
  - Thaw carefully to preserve antibodies.
  - Do not thaw frozen colostrum in extremely hot water or in a microwave at high power for >1 minute at time (this will destroy the antibodies).

BIRTH
(Continued)

- Dip Navel with 7% iodine tincture ASAP after birth.
  - Do not use teat dip or solution other than one designed for navel dipping.

DAY TWO TO WEANING

- Put calf in a dry and draft free environment.
- House calves individually.
  - Calf hutches should be separated by a minimum of four feet; ten feet is preferable.
- Keep manure out.
  - Equipment
  - People
  - Feed

DAY TWO TO WEANING (Continued)

- Restrict visitors.
  - Insist that visitors wear clean clothing and clean and sanitized boots (have a supply of disposable boots on hand).
- When working with groups of animals, always work with younger animals first (never work older to younger).

DAY TWO TO WEANING (Continued)

- Feed milk replacer rather than non-pasteurized whole or waste milk.
  - Studies show that calves fed non-pasteurized whole or waste milk had $8.13 less value per calf due to increased death loss and health and treatment costs; compared to control. (U.C. Davis)
  - These same calves were 8.14# lighter than the control at six months of age. (U.C. Davis)
- Clean, sanitize and dry all feeding utensils after feeding.

DAY TWO TO WEANING (Continued)

- Provide palatable, high quality calf starter on a free-choice basis at four days of age.
  - Do not use “waste” feed from older animals as feed.
- Provide clean, fresh water at all times.
- Make weaning as stress free as possible (minimize management changes).

GOOD BIOSECURITY MANAGEMENT PRACTICES

- The prevention of contamination of feed and water by non-dairy animals or chemicals.
- The prevention of transfer of infectious diseases from animals to people. Please protect yourself and your family by:
  - Wearing clean boots and clothing.
  - Always washing your hands after working with calves.
  - Restrict access by children and farm visitors to calves.

Research Summary (2,016 Calves)
4-Week Calf Performance and Health
[Low Ig Status Calves (below target 10 mg./ml.) vs. High Ig Status Calves (above target)]

- 2.2 pounds lighter
- Required 20.5% more feed/pound of gain
- 1.3 more scour days
- 12% higher mortality rate
- $3.74 higher treatment costs

Source: Land O'Lakes Animal Milk Products Company

Time Calves Remain With Cows After Birth and Heifer Calf Mortality*

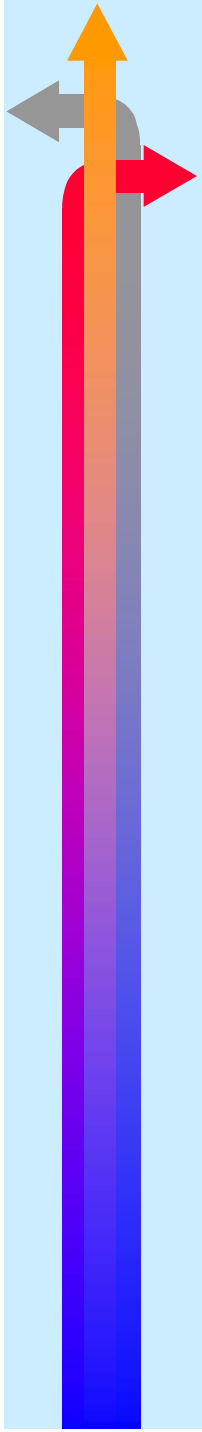
Time (Hours)	No. Herds	Average Mortality (%) (Calves 1 Week-6 Months of Age)
2- 6	13	5.2
7-12	35	9.3
13-24	32	10.7
25-48	24	20.5
+48	35	14.4

* *Clemson University*

Effect of Disinfecting Versus Not Disinfecting the Navel on Calf Mortality and Incidence of Scours and Pneumonia*

Treatment	No. Of Calves	% Mortality	% Treated for Scours	% Treated for Pneumonia
Disinfected	269	7.1	30.5	5.2
Not Disinfected	132	18.0	22.0	18.9

**Source: Calf Survival Study. Univ. Of Wisconsin*



WHY FEED CALF MILK REPLACER?

- Biosecurity
- Calf Performance and Health
- Economics of Production