



## Neonatal Calf Diarrhea

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### Preventing Calf Scours

Calf scours is a multifactorial complex that involves cow nutrition, calving process, management factors and immunity. The immunity of the calf is key in preventing calf scours. However, calfhood immunity is more than a scours vaccine program. Most beef cows produce adequate colostrum. Neonatal calves should receive adequate colostrum within the first 6 hours of life. Colostrum can be absorbed up to 24 hours of age, but the amount absorbed at that age is compromised. In problem herds colostrum transfer of antibodies can be tested at 24-48 hours of age by measuring serum total protein (>5g/dl) or IgG levels (>1000 mg/dl) with special kits. Once the calf has acquired adequate immunity from the dam, management factors that prevent pathogen load from overwhelming the immune system should be implemented.



### Cow Nutrition

The cows' diet should provide adequate energy and protein. Calves born to energy deficient cows will have reduced amounts of brown fat which supply energy for the calf to survive initially. These calves cannot produce sufficient body heat and may never stand and nurse. Additionally, adequate protein is also vital for calf vigor after birth. Calves born to cows that did not have adequate protein and energy will be less likely to stand and nurse immediately after birth. Therefore, acquired immunity will be adversely affected. Up to 80% of fetal growth occurs in the last 50 days of gestation. Females during this period of gestation need approximately 11 Mcal of energy and 1.7 lbs of crude protein per day. Cows should calve at a BCS of 5 (heifers at BCS 6) at calving.

### Calving Management

It has been well established that calves experiencing dystocia have a greater risk for subsequent disease, especially calf scours. Trauma associated with a difficult birth severely impacts the ability for that calf to nurse and absorb colostrum. Hypoxia during birth decreases colostrum absorption because pinocytosis is an active process that requires oxygen. It is important that all dystocia calves are provided with colostrum, preferably using colostrum attained from the dam while she is caught. Waiting to see if the calf will stand and nurse only puts the calf more at risk.

### Calving Environment

Once the calf has acquired immunity from the dam, it is important that the environmental load of pathogens does not overwhelm the calf's immunity. Generally, calf scour pathogens build up in the environment as the calving season progresses. Calving in the same area that older calves are in increases the risk to the newborn calf. Cow-calf pairs should either be moved out of calving areas daily or close up cows should be rotated onto clean pastures. Either one of these methods will reduce the build up of pathogens in the environment. Additionally, the calving area should be kept as clean and dry as possible. All the nutritional and colostrum management outlined above will have no effect if the first thing a calf ingests is manure from the calving pen.



## Neonatal Calf Diarrhea Testing Suggestions

### Antemortem Sampling

Fresh feces from acutely diarrheic calves prior to therapy  
Bovine Enteric Panel available which is inclusive of:

- K99 *E. coli*
- Salmonella spp.*
- Bovine Coronavirus
- Rotavirus
- Cryptosporidia

Samples may be pooled up to 5 fecals per test (at least 2 - 3 ml. feces per animal). Calves should be pooled within age groups. Individual culture for antimicrobial sensitivities is suggested.

### Postmortem Testing (Minimum samples)

Formalin-fixed:

- Ear notch
- Thymus/Lymph node/Liver
- Rumen/Abomasum
- 2-3 1.5 cm sections of ileum
- 1-3 1.5 cm sections of jejunum
- 2-3 open sections of colon

Fresh:

- 2 5-10 cm sections of ileum
- 2 5-10- cm sections of colon
- Tail of the cecum tied off with content present

### Contact

Call the VDL at 515-294-1950 or FSVM 515-294-3837

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See our website [www.vdpam.iastate.edu](http://www.vdpam.iastate.edu) for a complete list of testing and fees.