

Managing Pathogen Exposure for Successful Calf Raising

With recent changes to how neomycin and oxytetracycline can be used in calf milk replacers (see FrontLine® T001.76), it is an opportune time to evaluate what can be done to further decrease the incidence of calf health problems on dairies and custom calf operations.

The incidence of disease on a calf operation is a complex issue, but can be simplified by thinking of it as ***a balance between the calf's immunity and the degree of pathogen exposure***. Ideally, we want to maximize calf immunity through good colostrum management and effective dry cow and calthood vaccination programs. The other side of the equation involves reducing the exposure of the calf to pathogenic organisms that can cause scours or respiratory disease.



Key Sources of Pathogen Transfer

Pathogenic microbes that can cause scours are abundant on dairies and are transmitted to the calf predominantly through fecal contamination and subsequent oral ingestion of the microbe (fecal-oral transmission). The overall goal is to minimize the opportunities for the calf to come in contact with these organisms through management of the following:

- **Calving pen** – must be clean, dry, and well-bedded to minimize changes for pathogen transfer. In addition, calves should be removed from the calving pen as soon as possible after birth to limit exposure to pathogens that are present and to prevent nursing of the dam. Don't forget to clean the temporary holding pens/hutches and calf warming boxes regularly.
- **Colostrum** – recent research has identified that colostrum can have high bacteria counts due to inadequate udder preparation, poor sanitation of milking units, hoses, and collection buckets, or improper colostrum storage, which can then interfere with colostral antibody absorption. Colostrum cleanliness, quality, quantity, and quickness of feeding are all critical for achieving passive transfer of immunity.
- **Transports** – The equipment used to transport the calf to its hutch or pen, such as sleds, carts, or trailers should be cleaned regularly to avoid build-up of pathogens over time.
- **Housing** – The pen or hutch that the calf is placed into after removal from the calving pen is one of the most critical areas to clean; fecal material and soiled bedding from the previous calf are great sources of pathogens for the new occupant. Pens and hutches should be cleaned (e.g., power-washed), disinfected, and supplied with clean bedding. Many calf raisers will subject hutches/pens to direct sunlight for a few days after cleaning and will move hutches to previously unoccupied ground to attempt to break the cycle of soil-borne pathogen build-up.
- **Feeding equipment** – Milk and milk replacer solution can be good growth media for pathogenic microbes, therefore feeding equipment such as bottles, nipples, buckets, tanks, whisks, etc. should be cleaned and sanitized after every feeding. This equipment should be allowed to dry completely between feedings to reduce microbial growth in residual moisture from the cleaning process.
- **Other animals** – Although older calves, heifers, and adult animals may be healthy, they can be shedding pathogenic organisms in feces or saliva. It is always best to keep preweaned and newly weaned calves away from older animals, fill hutches/pens from youngest to oldest, and situate the hutches/pens away from cow barns or at least upwind from sources of fecal contamination.
- **People** – Fecal material can easily be transferred from pen-to-pen and calf-to-calf on hands, gloves, clothing, and footwear. Working from youngest to oldest (i.e., when feeding or treating) is recommended while taking precautions to decrease pathogen transfer through use of disposable rubber gloves.

Resources:

Leadley, S., Sanitation and Standard Operating Procedures, <http://www.atticacows.com/documentView.asp?docID=1612>, accessed 5/2/10
 Leadley, S., Calving Ease, July 2009, <http://www.atticacows.com/documentView.asp?docID=1435>, accessed 5/2/10