

## DeLaval hosts second free Calf College webinar: Dry cow and calving management

The second of eight free webinars in the DeLaval Calf College series, led by Dr. Robert James, DVM, featured dry cow and calving management. Dr. James, professor emeritus at Virginia Tech University, stressed the importance of caring for dry cows during this critical period as most fetal growth occurs in the last 60 days of gestation.

“I think one of the exciting areas of research available is dry cow management and the impact the dry cow has on the calf,” he said, noting that calf care is also important, especially from day one. “We’re finding out that things that we do with the first 24 hours, or first several hours and days, have an impact on her response to vaccinations and how she’s going to produce in her next lactation.”

Recently, with more information available, the approach to dry cow care and the calving environment has been shifting.

### Dry Cow and Calving Management: Past and Present

PAST	PRESENT
Rest for upcoming lactation	Impact of diet on mammary development, colostrum production and calf development
Low nutrient density diet	Environmental impact on cow and calf
Low management priority	Cow comfort and welfare
Minimal info on management of current lactation on next lactation and next calf	Environment and care at calving
	Cow- and personnel-friendly facilities

According to Dr. James, dairy producers should be focused on creating a low stress and low microbial environment at calving as well as optimizing the quantity and quality of colostrum. To achieve these results, a number of factors must be considered.

### Nutrition

Dry cows need a diet with lower energy and protein percentage and higher fiber percentage as compared to a lactating cow, but Dr. James warns that there can be a lot of variation in intake. “Your nutritionist needs to know how much dry matter your cows are consuming so [he or she] can put the right concentration of nutrients in the ration,” he confirmed.

This becomes more important in the days leading up to calving. In a study done at Virginia Tech University, pregnant Holstein and Jersey cattle were fed total mixed rations (TMR) varying in protein and energy for four weeks prior to calving. In nearly all treatment groups, the Jersey cows’ intake remained stable until two days before calving, whereas the Holsteins started decreasing their intake at 10 days before calving. Dr. James admits there are some differences in breed, but by providing comfortable facilities for these animals, he believes you can minimize the reductions in dry matter intake prior to calving.

Other keys to maintaining dry matter intake: provide fresh feed/TMR which is well-mixed and chopped uniformly. Cows also require an ideal feeding environment in order to consume the diet as intended – this means providing a feed bunk with adequate space (24 to 36 inches per cow) that is protected from inclement weather.

## Facilities

According to Dr. James, dry cow and calving facilities are often an afterthought, but modern research in this area is proving their importance.

Birthing facilities should be set up for easy observation and convenient milking. Timely milking has a large impact on colostrum quality, so keep milking for fresh cows low stress and close by if possible.

Prefresh housing requires a minimum of 100 square feet of resting space per animal. These cows also like to be with their herd mates rather than in isolation. The facilities should also allow for low stress handling, just in time calving and veterinary assistance. “I think too often we do things that are convenient for us, but that really may cause some stress on the animal,” said Dr. James.

Dr. James recommended that close up cow facilities have spacious free stalls or a bedded pack with no overstocking. He noted that these cows could be efficiently divided into three management groups – a close up pen of cows 14 to 21 days from calving, a maternity pen of cows 1 to 3 days from calving, and a calving pen. However, Dr. James advised against making too many group changes as it could cause unnecessary stress.

## Environment

There are many proven benefits to keeping dry cows cooled and shaded. “Temperature, humidity and light all have an impact on the cow and her fetus,” said Dr. James. While heat stress varies by body condition, coat, and color, it can negatively impact mammary growth and lactation and compromise placental development.

Research from the University of Florida showed that calves born from cooled cows did a better job absorbing colostrum; they had higher levels of antibodies (IgG) in their blood. These calves also did a better job adapting to heat stress later in life. The same research concluded that calves born from heat-stressed mothers had lower birth weights, less efficient colostrum absorption, lower survival rates (66% vs. 85%), and lower milk production rates in first lactation (27 vs. 32 kg/day).

## Feeding Colostrum

Compared to milk, colostrum has more nutrients and minerals, and it also contains substances which foster gut development, which supports better nutrient absorption. Dr. James encouraged producers to harvest colostrum which is high in antibodies (greater than 50g IgG/L) and low in bacteria (less than

100,000 cfu/ml). Quality colostrum is impacted by dry cow nutrition, amino acid nutrition and the interval between calving and harvesting colostrum.

When handling colostrum, there are some challenges to overcome. To keep microbial exposure low, a producer should pay attention to three critical control points: the cow’s mammary gland, which has a low bacterial count,

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### Influence of other colostrum components?

Component	Colostrum	Milk
Solids %	15 – 25	12.5
Protein %	4 – 14	3.3
IgG%	5.2 – 9.2	0.04
Lactoferrin %	0.15	0.002
IL-1B	840ug/1000ml	3 ug/1000ml
TNF	926ug/1000ml	3.3 ug/1000ml
IGF-1	100 – 2000 ug/1000ml	<25ug/1000ml

the container used to store colostrum, and the feeding system. These last two have the highest potential for contributing to bacterial growth.

“Think about having cleaning procedures that are just as good for the handling of colostrum as we have for salable milk – or even better,” emphasized Dr. James.

He also recommended pasteurizing colostrum milk, which has a much lower bacterial count and stays more stable under refrigeration. He also noted that colostrum management systems can facilitate freezing and thawing colostrum efficiently in a way that minimizes bacterial growth.

“Every 20 minutes, the bacterial count is going to double,” said Dr. James. It’s important that the colostrum is either fed – or preserved – as quickly as possible.

Dr. James concluded by saying, “[All of these considerations] have a tremendous impact on the performance of the cow, and the health and performance of her calf – both immediately and [in her] life time.”

This entire Calf College webinar series is available for playback online at [www.delaval.com](http://www.delaval.com).