Question and answer from Hoard’s Dairyman – Dr. Sheila McGuirk, University of Wisconsin

**Combination Vaccine for Pneumonia May Be a Good Fit**

We have experienced some calf pneumonia in preweaned heifer replacements and are contemplating the use of an intranasal vaccine. The vaccine is supposed to provide protection against bovine syncytial virus (BRSV) parainfluenza-3 (PI3) and infectious bovine rhinotracheitis (IBR) during the first six – eight weeks of life. We are hoping for some guidance on how it might help and when to use it. Signed R.I. Canada

Dr. McGuirk’s answer:

*Pneumonia can be a serious issue in calves before weaning. For many years we have focused our attention with the respect to calf pneumonia at or after weaning. But more scientific evidence emphasizes the fact that many heifer replacements experience their first bout of respiratory disease (pneumonia) well prior to weaning. We still recognize the heightened risk for acquiring new respiratory infections when calves are weaned in group housing and undergo the stress of weaning. However many calves may have already experienced a bout of pneumonia prior to even 1 month of age.*

*To answer your question there are several intranasal vaccines on the market. Calves tolerate these vaccines well. When first brought to the market for use in calves it was commonplace to administer them immediately prior to weaning, hoping to protect calves best at the time of moving into group housing. However a different approach has been adapted more recently. Many people now administer them at a younger age – sometimes even in the first week of life - in hopes of protecting the calves against new respiratory infections earlier than at weaning.*

*In addition to helping protect against viral pathogens part of the philosophy behind their use is that they also may help against bacterial pneumonia infections such as Mannheimia, Pasteurella and Mycoplasma by inspiring the calf to produce more of a substance called interferon within the airways. Interferon is generally beneficial for helping combat infectious organisms of various types. This is an important point because the bacterial pathogens tend to be more relevant and common causes of pneumonia in calves of this age.*
True viral pneumonia in dairy replacements raised in individual pens prior to weaning is probably limited mainly to BRSV out of the three viruses within these vaccines. BRSV can be such a devastating problem that your veterinarian may consider this product justifiable purely for BRSV protection.

Our comment to this discussion: is to recommend the product ‘INFORCE 3’ intranasal (IN) at birth or in the first week of life. This product has performed extremely well for our producers. ‘INFORCE 3’ administered early and timely avoids problems later in the life of the calf. IN vaccination with ‘INFORCE 3’ stimulates a very rapid but controlled interferon response as well as IgA antibodies from mucosal lymph nodes. Temperature sensitive strains of IBR and PI3 as well as the nature of BRSV result in the controlled release of interferon which offers protection against all viral pathogens and even some bacterial agents. IgA antibodies act by clumping pathogen (antigens) together resulting in large foreign body masses that are easily handled by the muco-ciliary escalator (the defence mechanism) of the respiratory tract.

Pneumonia in Replacement Dairy Calves

Incidence: The incidence of pneumonia in replacement heifers always increases dramatically with the onset of changeable temperatures. Overall infection rate is ~15%. This means that on average the disease affects 15% of your young stock. However, pneumonia can reach seasonal incidence rates of 40 to 60%. Spring and fall are the times when young stock is most at risk.

Economic Impact: Immediate losses due to respiratory disease at first glance can be obvious; increased labour and medication costs, death loss of 1-3%. These short-term economic losses are recognized by the dairy industry but the possible long-term effects of respiratory disease on the future productivity of the calf have only been recently documented.

Heifers treated for pneumonia during the first 3 months of life are 2.5 times more likely to die after 90 days of age than heifers that had not been treated for pneumonia. Heifers that do NOT suffer from respiratory disease are 2 times more likely to calve and calve for the first time 6 months earlier, compared to heifers with respiratory disease as calves. There is a definite reduction in growth of heifers that have pneumonia. Cows are at a higher risk of being culled if they had pneumonia as a calf. The production performance of cows that had pneumonia is reduced but it is difficult to predict the actual sub-optimal performance attributed to having pneumonia as a calf.

Prevention: As above we recommend the product ‘INFORCE 3’ intranasal (IN) at birth or in the first week of life. This product has performed extremely well for our producers. ‘INFORCE 3’ administered early and timely avoids problems later in the life of the calf. IN vaccination with ‘INFORCE 3’ stimulates a very rapid but controlled interferon response as well as IgA antibodies from mucosal lymph nodes. Temperature sensitive strains of IBR and PI3 as well as the nature of BRSV result in the controlled release of interferon which offers protection against all viral pathogens and even some bacterial agents. IgA antibodies act by clumping pathogen (antigens) together resulting in large foreign body masses that are easily handled by the muco-ciliary escalator (the defence mechanism) of the respiratory tract.

Calves 2-3 months of age can be vaccinated with Pyramid 4 + Presponse or Express 5 + Presponse. This vaccine offers protection against IBR, BVD, PI3, BRSV (a virus commonly causing cough and predisposing calves to pneumonia) and Pasturella bacteria (a common bacteria involved in pneumonia). These vaccines have performed
exceptionally well. In some herds we may recommend that calves be revaccinated with ‘INFORCE 3’ 3 weeks after the initial vaccination

A few dollars spent now to increase the resistance of your calves to respiratory disease will return huge rewards when the changeable weather returns. Remember also to clip your calves so they do not over heat. Sweating during the day leads to chilling at night, which is a key predisposing factor for calves to develop pneumonia.

Summary: The incidence of respiratory disease is high. Seasonal incidence is greatest during times of extreme weather change such as spring and fall. Pneumonia results in serious long-term consequences. Preventive procedures have been offered to help reduce the disease incidence. High priority should be give to the implementation of a vaccination control program against pneumonia.

CQM Corner

A new CQM website was launched on August 15, 2012. Producers who are due to be validated between August 2008 and July 2013 should receive a letter from DFO explaining how to access the new website. For the remaining producers letters will be sent out by the end of the year.

The new website, located at www.canadianqualitymilk.org is a National Electronic Administration System (NEAS) and was developed with funding from Agriculture Canada.

Producers can log in to this site to develop and edit your SOPs and Corrective Action Plans on-line. The NEAS will also track all of a producers activities related to CQM. It will highlight when your next validation is due. You can submit your Self-Declarations electronically. Also, the NEAS will store your validation reports, Self-Declarations, Registration Applications etc. you can also access all CQM documents and contact information.

If you have taken In-Class training your CQM Advisor can access your SOPs to review them.

DFO will transfer all existing SOPs onto the new CQM website. DFO will do producers who are due on or before July 2013 first, with the remainder done later. In the future do not go to the DFO website to access your SOPs and if you are due for validation in the next 12 months and have not received a letter contact you FSA.

CQM Hint

When your herd veterinarian signs and dates your prescriptions make sure the date is before the three months of records that you are having reviewed at validation. You should be using a treatment protocol only after a valid prescription has been written.
Over milking part two – machine stripping

As a follow up to last month’s newsletter on over milking, this month ‘machine stripping’ will be the focus of my article. Again, the goal of milking cows should be to remove all the available milk, quickly and gently. To arrive at this goal we need to balance the stress of milking with the cow’s milk production. To quickly review some aspects of over milking that are also important when discussing machine stripping I would like to revisit the concept of ‘closing the top door on milk production’. This concept refers to the swelling and edema that occurs at the top of the teat during milking that essentially results in the blockage of milk flow between the gland cistern and the teat cistern. This swelling occurs due to front and hind end over milking and can be a limiting factor in the harvest of milk from the udder.

A practice that I see on many farms that adds to ‘closing the top door on milk production’ and that also negatively affects udder health is ‘machine stripping’. Machine stripping is the practice of pulling down on the milking unit either manually or with the use of additional weights. I don’t like to see any machine stripping because it has detrimental effects on both milk production and udder health. When I ask people why they machine strip I get answers like; “that quarter milks out slower” or “she milks out unevenly if I don’t” or “I have to or she will get mastitis” and “I need to get all the milk out”.

There are degrees of machine stripping on farms that range from pulling down on milking units for 10 seconds at the end of milking to hanging weights from milking units for the entire milking. I think it is best to address both types of machine stripping separately.

When it comes to hanging weights from milking units for the duration of milking we need to look at machine stripping from another point of view. The reason why the cow is a slow milker is that she has been trained to only milk out with the added weight on the milking unit. The effect of hanging a weight from the milking unit is that more and more of the teat(s) are pulled into the liner as the weight and vacuum compete in a tug-of-war over the teat. This pulling of teats into the liner results in more swelling at the top of the teat, effectively closing the top door sooner and reducing total milk production. The reason a cow milks out unevenly is not because added pressure is not applied to one quarter. The reason a cow milks out unevenly is because the milking unit is not hanging squarely under the cow. This could be because the cows’ udder is not balanced making it impossible to hang a unit squarely. The question quickly becomes, why is the udder so unbalanced that weights are required to achieve even milk out. I argue that this is often a result of multiple lactations with poorly aligned milking units and the use of added weights on milking units resulting in uneven milk production between quarters.

In terms of manually pulling down on the milking unit at the end of milking, the goal is usually to remove the last bit of milk from the udder. This myth that machine stripping is required to remove all the milk from the udder to reduce the risk of mastitis is completely false. Leaving milk in the udder is inevitable; 10 – 15% of milk in the udder at the start of milking can not be removed by milking. By machine stripping you are just as likely to leave the same amount of milk in an udder as with not machine stripping. This cow may get mastitis but she is just as likely not to get mastitis if everything else is done right.
The fact is cows that are machine stripped are more likely to get mastitis. To explain this fully takes a degree is engineering and physics, but I will try my best. At the end of milking (or any time when milk flow is low), the pressure inside the teat is actually lower (more negative) than in the milk path. When we pull down on the milking unit we are in effect creating a liner squawk, letting air from the outside environment into the milking unit. Since the pressures inside the teat are lower this air along with tiny milk particles travel into the teat. These tiny particles of milk can carry with it bacteria that were on the surface of the teat, potentially leading to mastitis. This principle is known as ‘reverse impacts’ and can be a serious problem if machine stripping is combined with less than optimal udder sanitization.

Some may argue that cows that they machine strip never get mastitis, this may be true. I don’t want to say that every cow that is machine stripped will get mastitis, but I think the risk of mastitis is greater because of reverse impacts, closed top doors and the additional stress on teat ends from over milking. I don’t think the risk is worth the reward.

The next question on every ones mind is “how do I avoid machine stripping?” This solution is easy for the manual machine stripping at the end of milking. These units should just be removed without pulling down on the unit. Yes, some extra milk will be left in the udder but this milk is inconsequential to over all milk production and will not lead to more mastitis. It is just a change of mind set that is needed. On the other hand, cows that have weights added for the duration of milking are much harder to deal with. I think the best answer is, don’t start and you wont have cows trained to milk out with machine stripping. This solution doesn’t help with the cows that are already accustomed to having weights hanging from their milking units, but it will eventually eliminate the need for chain links hanging around the barn as these cows are replaced. The ultimate solution is unit alignment during milking. If units hang squarely under cows, they should milk out fully and evenly. Cows with quarters that appear to milk out slowly may have abnormalities in or on their teat ends but more than likely these cows have uneven quarters and unit alignment will always be an issue. Until these cows are removed from the herd they will likely need to be machine stripped if proper unit alignment is impossible. The goal going forward is to reduce the number of clinical mastitis events that result in uneven quarters and ensure proper unit alignment to maintain even milk production from all four quarters.

Summary

‘Over milking’ and ‘machine stripping’ add to edema and swelling of teats and ‘close the top door on milk production’

Mastitis causing ‘Reverse Impacts’ occur at the end of milking when air is let into the milking unit as a result of ‘machine stripping.’

Preventing mastitis and proper unit alignment are key to maintaining even milk outs and therefore reducing the need for ‘machine stripping.’
Product Corner

Pfizer Dry Cow Intramammary Special

Novodry, Orbeseal and Spectramast Dry Cow are on sale until the end of September, 2012. Receive 5-10% off (depending on quantity purchased) with immediate payment – cash, cheque or debit only. These products can also be included in the Pfizer Loyalty Program.

Estroplan

Estroplan (bioequivalent to Estrumate) is available at a reduced rate until the end of September, 2012.

Theracalcium

Theracalcium 250mL is back in stock after being on backorder.

Electronic Version of the Newsletter

If you wish to receive this newsletter electronically, please email Sarah at ssmith@tavivets.ca to be added to our email list. Also, if you have an employee or know of someone else who would like to receive this newsletter, please let us know.