Control and Prevention of BRD Complex

April 2025 DVM Daniela Gonzalez Carranza Dairy Management Specialist





The **Central New York Dairy**, **Livestock & Field Crops Program** is a Cornell Cooperative Extension partnership between Cornell University and the CCE Associations in 8 counties.





What risks do I have in my farm?

What management practices can I change?

How am I preparing my animals?



* Contribution of the Mucosal Microbiota to Bovine Respiratory Health. Zeineldin, Mohamed et al.. Trends in Microbiology, Volume 27, Issue 9, 753 - 770

Trends in Microbiology

Herd specific risk assesment tool



Journal of Dairy Science Volume 103, Issue 10, October 2020, Pages 9301-9317



 Assessment tool to get total score on risk for BRD on preweaned calves. Research

A novel risk assessment tool for bovine respiratory disease in preweaned dairy calves

<u>G.U. Maier¹</u>, <u>W.J. Love¹</u>, <u>B.M. Karle²</u>, <u>S.A. Dubrovsky¹</u>, <u>D.R. Williams¹</u>, <u>J.D. Champagne¹</u>, <u>R.J. Anderson³</u>, J.D. Rowe⁴, <u>T.W. Lehenbauer¹⁴</u>, A.L. Van Eenennaam⁵, S.S. Aly¹⁴ $\stackrel{\circ}{\frown}$ ⊠

Sections

- 1. Herd profile
- 2. Maternity pen management
- 3. Colostrum management
- 4. Milk Feeding
- 5. Vaccinations
- 6. Housing

A. Herd BRD Risk

	Risk Factor	Level		Sco	re	
1.1			<250	24		
	What is the average		250-999	14		
	number of milking cows		1000-3999	0		
	in the herd?		4000+	18		
1.2	Is your dairy a certified		no	0		
	organic milk producer?		yes	11		
1.3		S	pring (April -June)	0		
	What series is it?	Summer	(July -September)	30		
	What season is it?	Fall (Oct	ober - December)	46		
		Winter	(January - March)	27		
1.4	What percent of the herd					
	are the following breeds?	Crossbred		% x	0 = 0	
	Use decimals to calculate					
	score, e.g. if	Holstein		% x	17 =	
	60 % Hoistein and 40 %	laman		0/	22 -	
	Jersey, score is $0.6 \times 17 +$	Jersey		% X	22 =	
	$0.4 \times 23 = 10.2 + 9.2 = 19.4;$			Total		
			ord profile risk seere	Total.		
	Your herd's profile contribu	ition to preweaned	calves' BRD risk:			
	43	47	63		72	
	Very Low	Low	Moderate		High	N N

Enter each section's risk score in the table below to determine the overall preweaned calf herd's BRD risk score and risk category:

BRD risk assessment sections		Your herd's BRD risk score		Maximum score			
1. Herd profile score					103		
2. Maternity pen management score					105		
3. Colostrum management score					145		
4. Calf milk feeding score					244		
5.	5. Vaccination score					44	
6. Calf housing score				359			
		Total score				1000	
Your herd's preweaned calves' BRD risk: (see Figure 1 for benchmarking heatmap)							
357	7	414	467	550		655	
Very Low Low		Moderate	High	I	Very High	_	

Nutrition

- How much are you feeding your calves?
- Increase feed intake through Fall / Winter season
- Avoid sudden dietary changes



Adec Table 1. Target percentages of calves in each transfer of passive immunity category, IgG concentration, total protein, and equivalent Brix values

Classification	Serum IgG	Total protein	Equivalent Brix	Herd goal
Classification	(g/L)	(g/dL)	(%)	(% calves)
Excellent	>25.0	>6.2	>9.4	>40
Good	18.0-24.9	5.8-6.1	8.9-9.3	~ 30
Fair	10.0-17.9	5.1-5.7	8.1-8.8	~ 20
Poor (Failure)	<10.0	<5.1	<8.1	<10

Cornell Coope Source: Lombard et al. (2020)

n

unity

Calf housing



Fugitive dust due to vehicular motion



Maternity pen management



Bedding materials
Increased risk with dried manure solids

- Gypsum

2. Removing calves from cows within 1 hour of birth

Maternity pen management

3. Change of bedding6,7 o 8 times per month

4. Cows and heifers commingling had an increased risk



Let's think about adult dairy cows



- Nutrition
- Vaccination
- Minimize stress
- Ventilation
- Biosecurity

Caring for immunocompromised dairy cows during transition, what can MCFA do?

Biosecurity practices

• Test on-coming animals for BVD.

CATTLE INFECTIOUS DISEASES, MODES OF SPREAD AND INCUBATION PERIOD

EVERYDAY BIOSECURITY STEP 3 - EVERYDAY BIOSECURITY PLAN TEMPLATE: DAIRY

Biosecurity actions are needed daily to help ensure animal health. This template can be used by any dairy operation to develop a daily biosecurity plan for their premises.

Check all boxes and keep all items that apply. Customize the plan by filling out this form with information specific to your operation.

FARM Everyday Biosecurity – Reference Manual Version 1



Ventilation

- Air quality
- Air speed
- Reduce overcrowding
- Clean fans



Seven things that cows hate



Dairy Veterinary Consultancy

Necropsies

- Systematic approach
- Clinical history (treatment records), necropsy and samples contribute to a complete diagnosis.





Antimicrobial stewardship

• Metaphylaxis can decrease BRD morbidity and mortality, however, studies demonstrate **antimicrobial resistance**



Veterinary Microbiology Volume 221, July 2018, Pages 143-152



Multidrug resistant *Mannheimia haemolytica* isolated from high-risk beef stocker cattle after antimicrobial metaphylaxis and treatment for bovine respiratory disease

Amelia R. Woolums ^a 1 久 函, Brandi B. Karisch ^b, Jonathan G. Frye^d, William Epperson ^a, David R. Smith ^a, John Blanton Jr. ^b, Frank Austin ^a, Ray Kaplan ^c, Lari Hiott ^d, Tiffanie Woodley ^d, Sushim K. Gupta ^d, Charlene R. Jackson ^d, Michael McClelland ^e

- Know the most common **pathogens** in your farm
- Early disease detection
- Proper antibiotic administration if needed
- Good treatment records
- Monitor lung lesions

RESEARCH · Volume 103, Issue 10, P9464-9472, October 2020 · Open Archive

Prevalence and temporal trends in antimicrobial resistance of bovine respiratory disease pathogen isolates submitted to the Wisconsin Veterinary Diagnostic Laboratory: 2008–2017

🛃 Download Full Issue

C.L. Holschbach $\stackrel{O}{\sim}$ ¹ $\stackrel{I}{\boxtimes}$ · N. Aulik ^{2,3} · K. Poulsen ^{1,3} · T.L. Ollivett ¹

Affiliations & Notes \checkmark Article Info \checkmark

Where to start?

- Asses your farms risk
- Maximize innate immunity
- Reduce load of agents



Where to start?

- Measure transfer of passive immunity
- Minimize stress in transport/dehorning / weaning
- Measure ADG birth weaning
- Grouping strategies
- Facilities (clean air, wind speed, cleanliness)
- Low stress handling



Questions??

(315)749-3486