Pneumonia prevalence and management in pre-weaned dairy calves
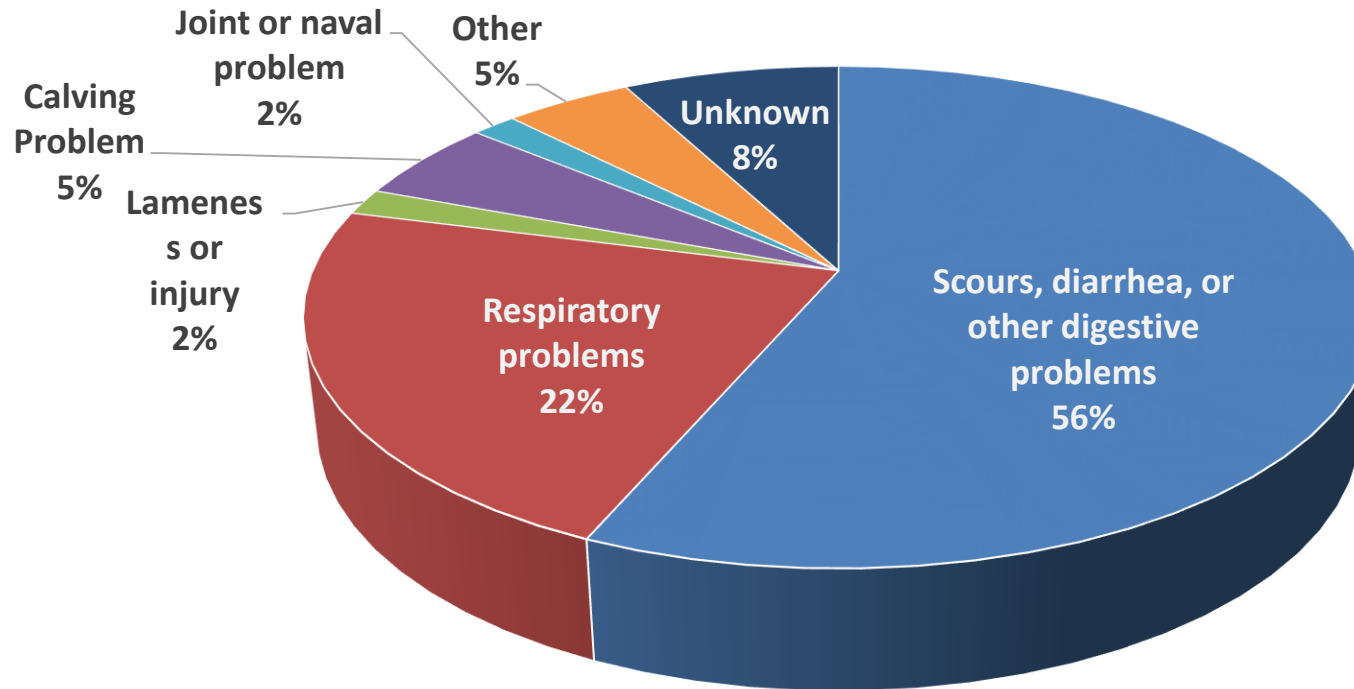
Betsy Karle
University of California
Cooperative Extension

Dairy Advisor – Northern
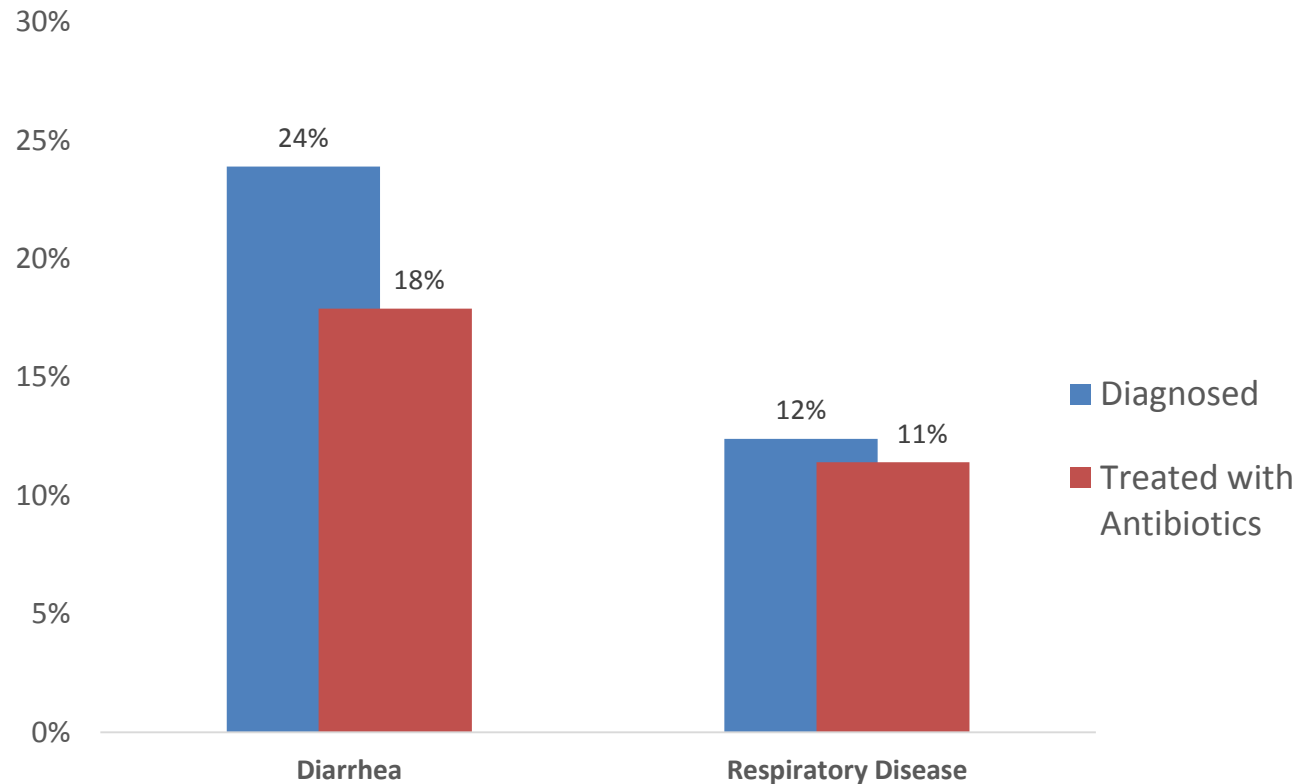Sacramento Valley

What's Killing our Calves?

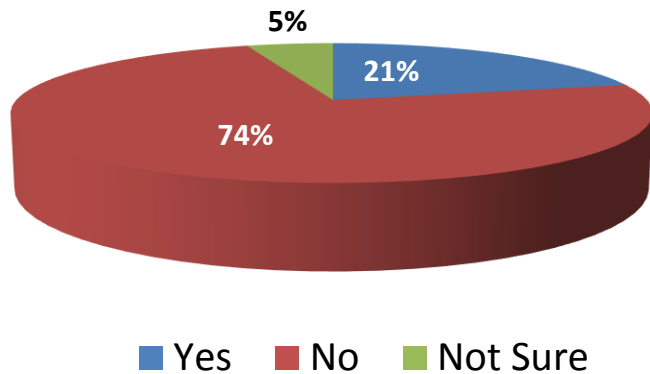7.8% death rate for pre-weaned calves in U.S.

NAHMS 2007

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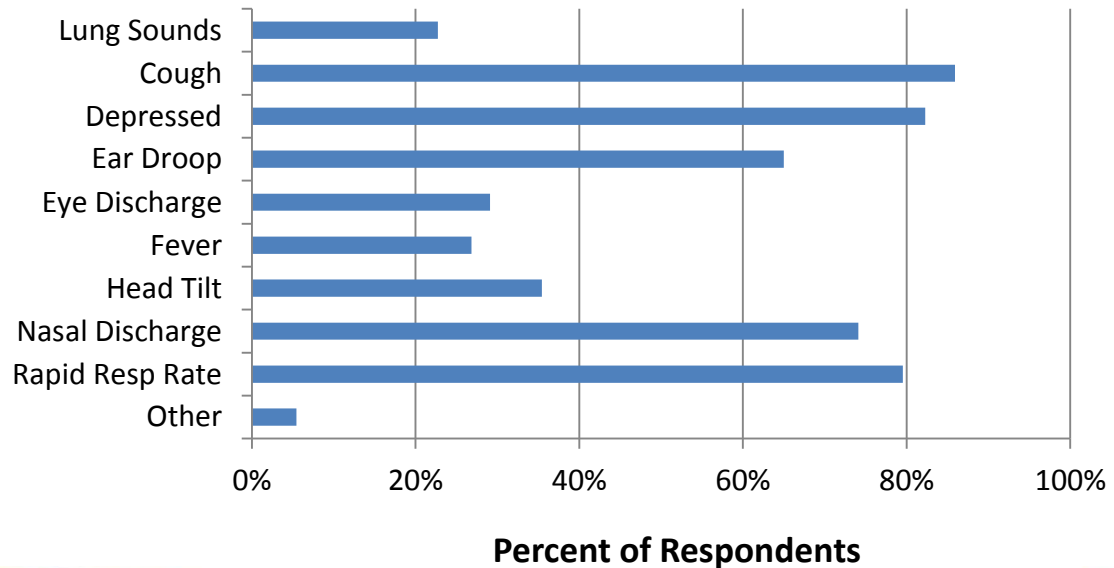
What's making calves sick?

NAHMS 2007

Disease Monitoring & Prevention

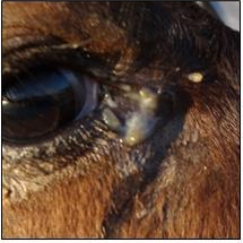Is a scoring system or facility specific
protein used to diagnose pneumonia?

5%

21%

74%

■ Yes ■ No ■ Not Sure
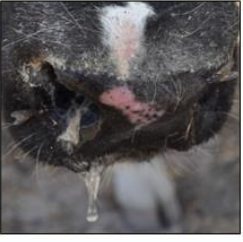
Which of the following signs are regularly used
to diagnose pneumonia in calves on your dairy?

Lung Sounds
Cough
Depressed
Ear Droop
Eye Discharge
Fever
Head Tilt
Nasal Discharge
Rapid Resp Rate
Other

0%   20%   40%   60%   80%   100%

Percent of Respondents

Karle et al. 2014

Bovine respiratory disease scoring system for pre-weaned dairy calves[1,2]

Clinical sign	Score if normal		Score if abnormal (any severity)[2]		
Eye discharge	0		2	Or	Or
Nasal discharge	0		4	Or	Or
Ear droop or Head tilt	0		5	Or	Or
Cough	0	No cough	2	Spontaneous cough	
Breathing	0	Normal	2	Rapid or difficult breathing	
Temperature	0	< 102.5° F	2	≥ 102.5° F	

Add scores for all clinical signs, if total score is ≥ 5, calf may be positive for bovine respiratory disease
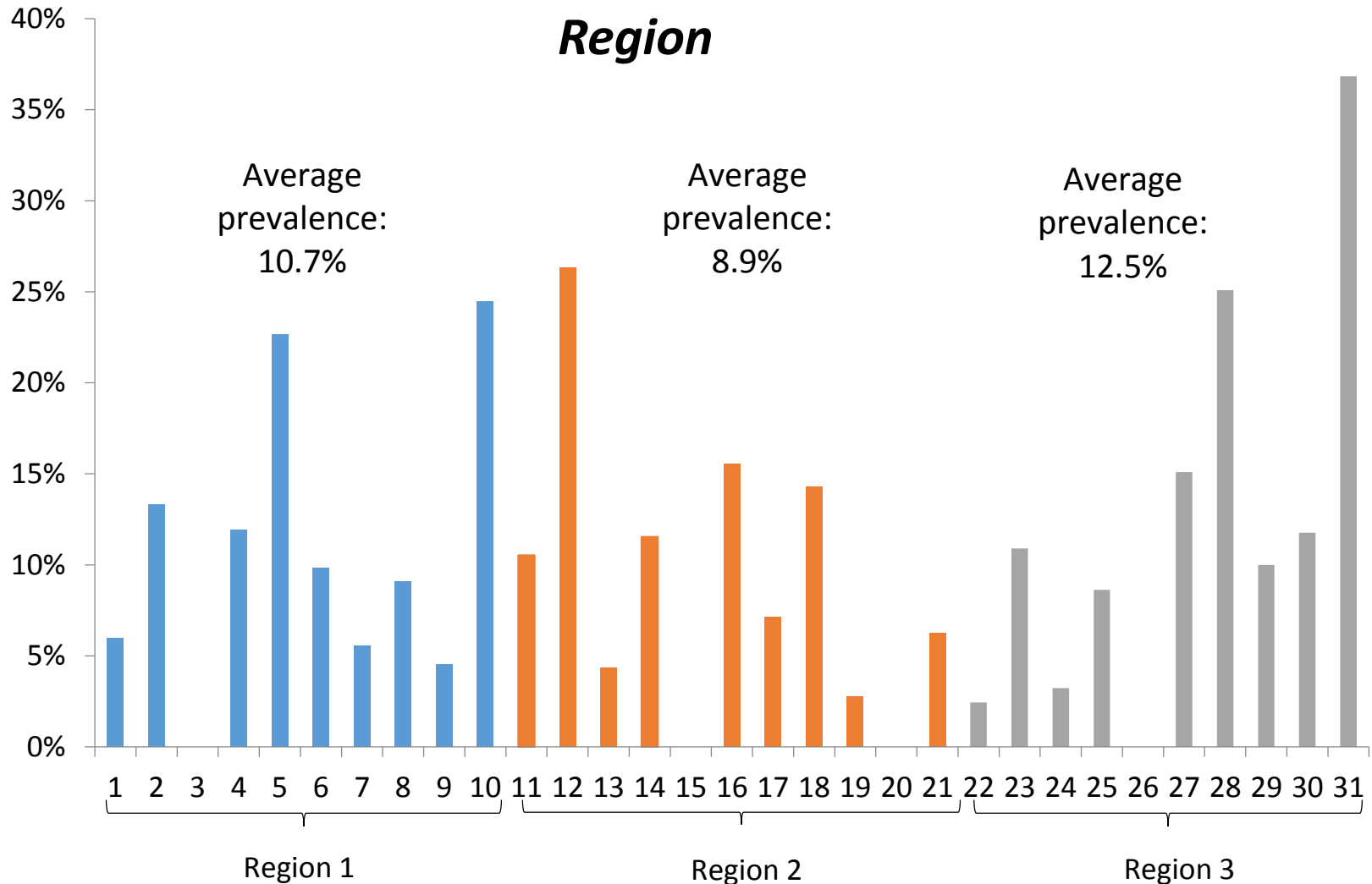
1: Love WJ, Lehenbauer TW, Kass PH, Van Eenennaam AL, Aly SS. (2014) Development of a novel clinical scoring system for on-farm diagnosis of bovine respiratory disease in pre-weaned dairy calves. PeerJ 2:e238 *https://peerj.com/articles/238.*

2: Aly SS, Love WJ, Williams DR, Lehenbauer TW, Van Eenennaam AL, Drake C, Kass PH, Farver TB. (2014) Agreement between bovine respiratory disease scoring systems for pre-weaned dairy calves. Animal Health Research Reviews. IN PRESS

3: Any abnormality including, but not limited to, the examples shown in the above pictures.
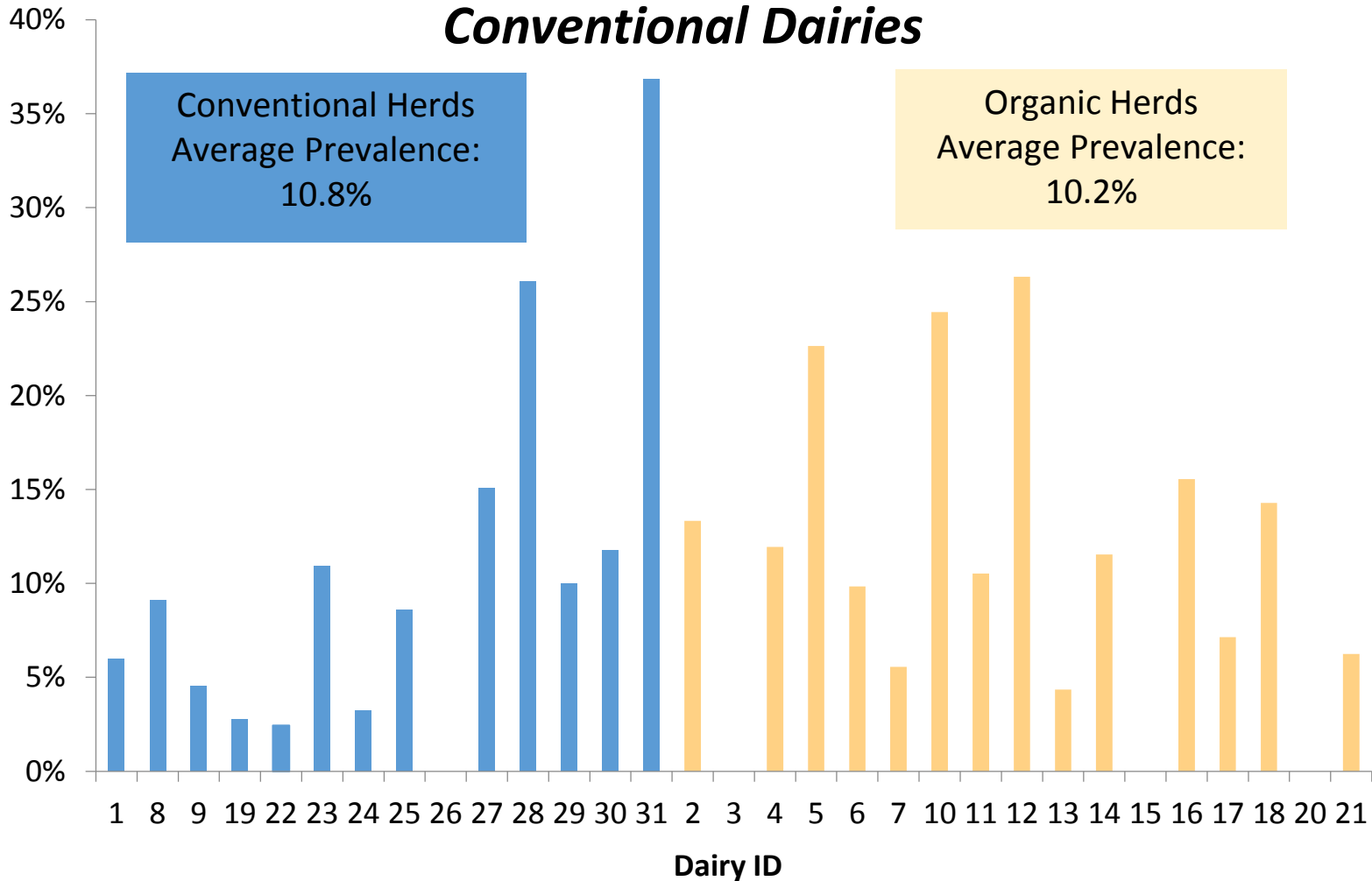
Table 1: Demographics and Prevalence by Region

	Region 1 Humboldt & Del Norte Counties Mean (range)	Region 2 Sonoma, Marin & Mendocino Counties Mean (range)	Region 3 Glenn, Tehama & Yuba Counties Mean (range)
Herd Size	788 (120-3,500)	305 (185-570)	1,009 (175-3,300)
Qts. colostrum fed in first 12 hrs.	4.25 (3-8)	3.4 (2-8)	3.6 (1-6)
Age calves moved to group pens (d)	95 (30-150)	77 (10-110)	62 (21-100)
No. pre-weaned calves on site	117 (17-450)	58 (23-150)	163 (20-500)
BRD prevalence (%)	10.7 (0-24.4)	8.9 (0-26.3)	12.5 (0-36.8)

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Karle et al. 2015

Prevalence of BRD in Pre-Weaned Calves by Region

Karle et al. 2015

Prevalence of BRD on Organic and Conventional Dairies

Conventional Herds Average Prevalence: 10.8%

Organic Herds Average Prevalence: 10.2%

Dairy ID

Karle et al. 2015
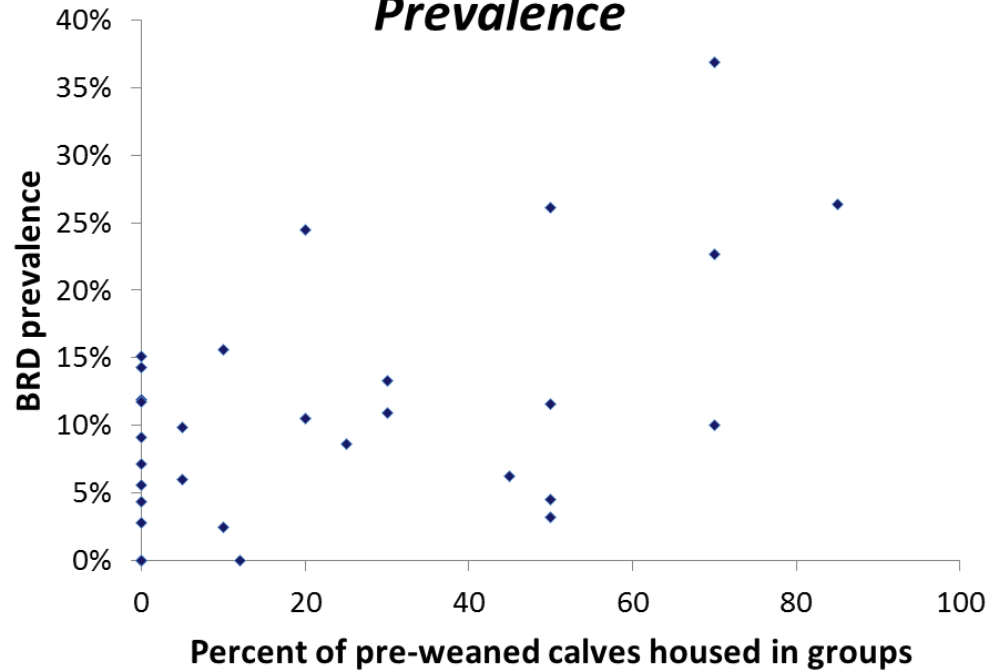
Prevalence of BRD by Herd Size
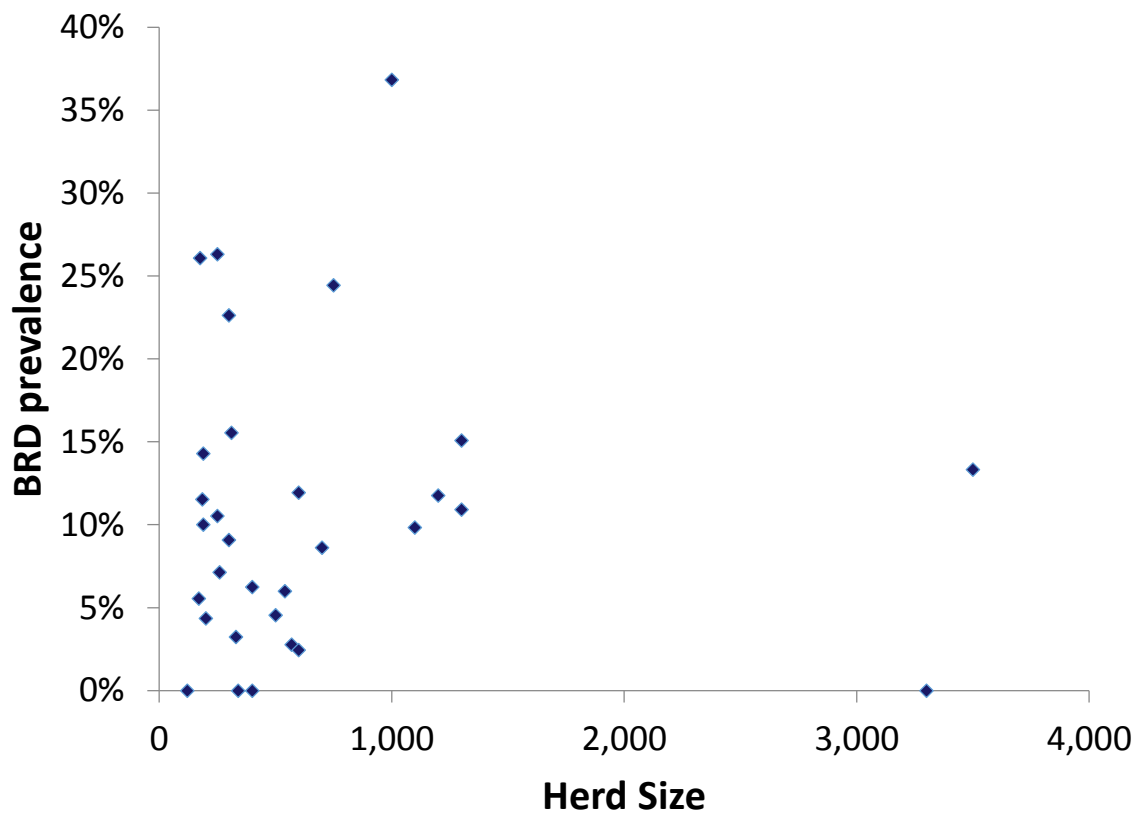
Group Housing and BRD Prevalence

	Odds ratio	Std. Error	p-value
Number of calves per pen			
One	Ɨ		
Each additional calf	1.08	0.013	<0.001

Ɨ = reference category

Karle et al. 2015

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Colostrum Management

Is colostrum pasteurized?

Yes   **No**   **Sometimes**
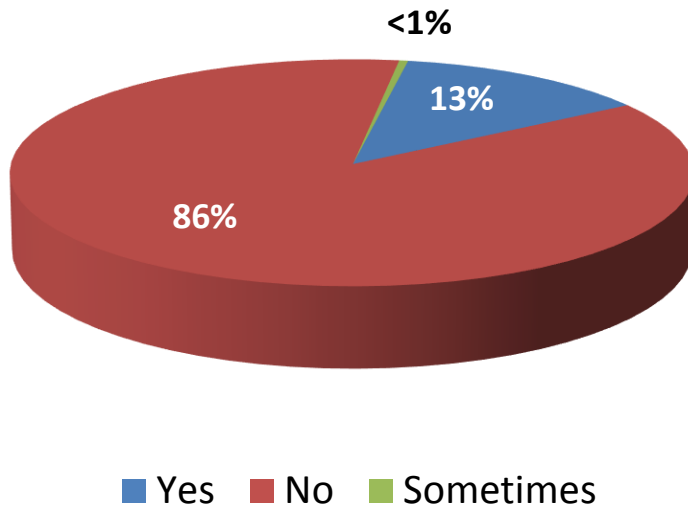
Is colostrum quality tested (i.e. refractometer or colostrometer)?

- All colostrum is tested
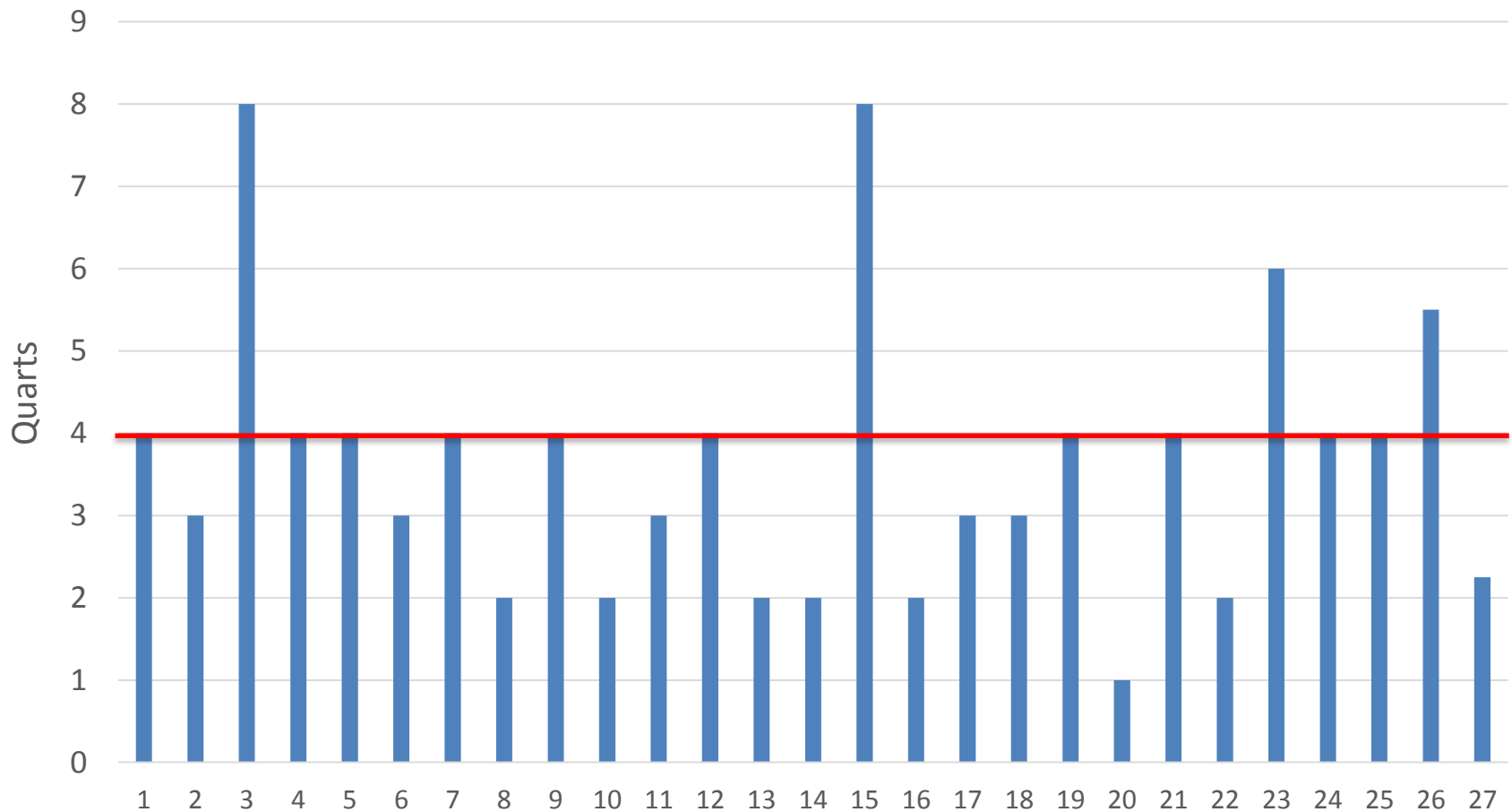- Only colostrum from heifers
- Sometimes
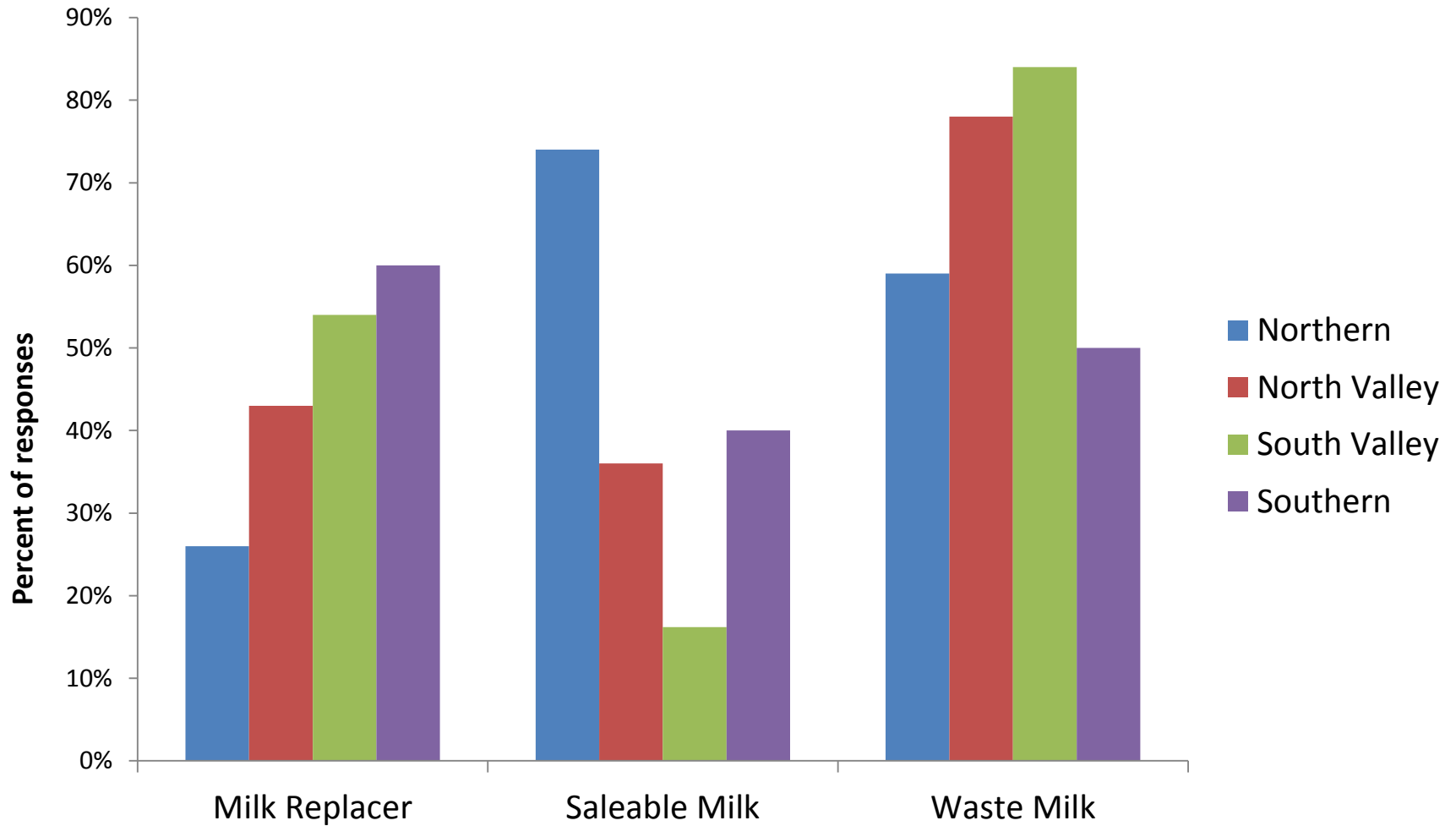- No
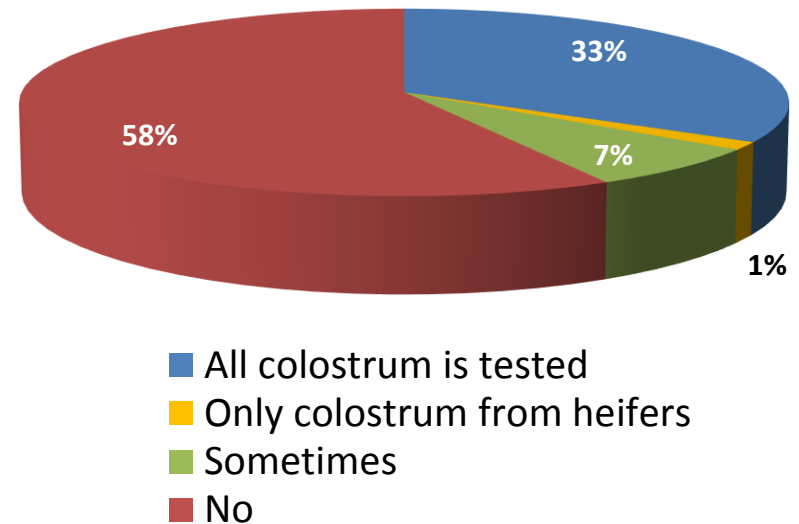
Karle et al. 2014

Colostrum Source for Heifer Calves
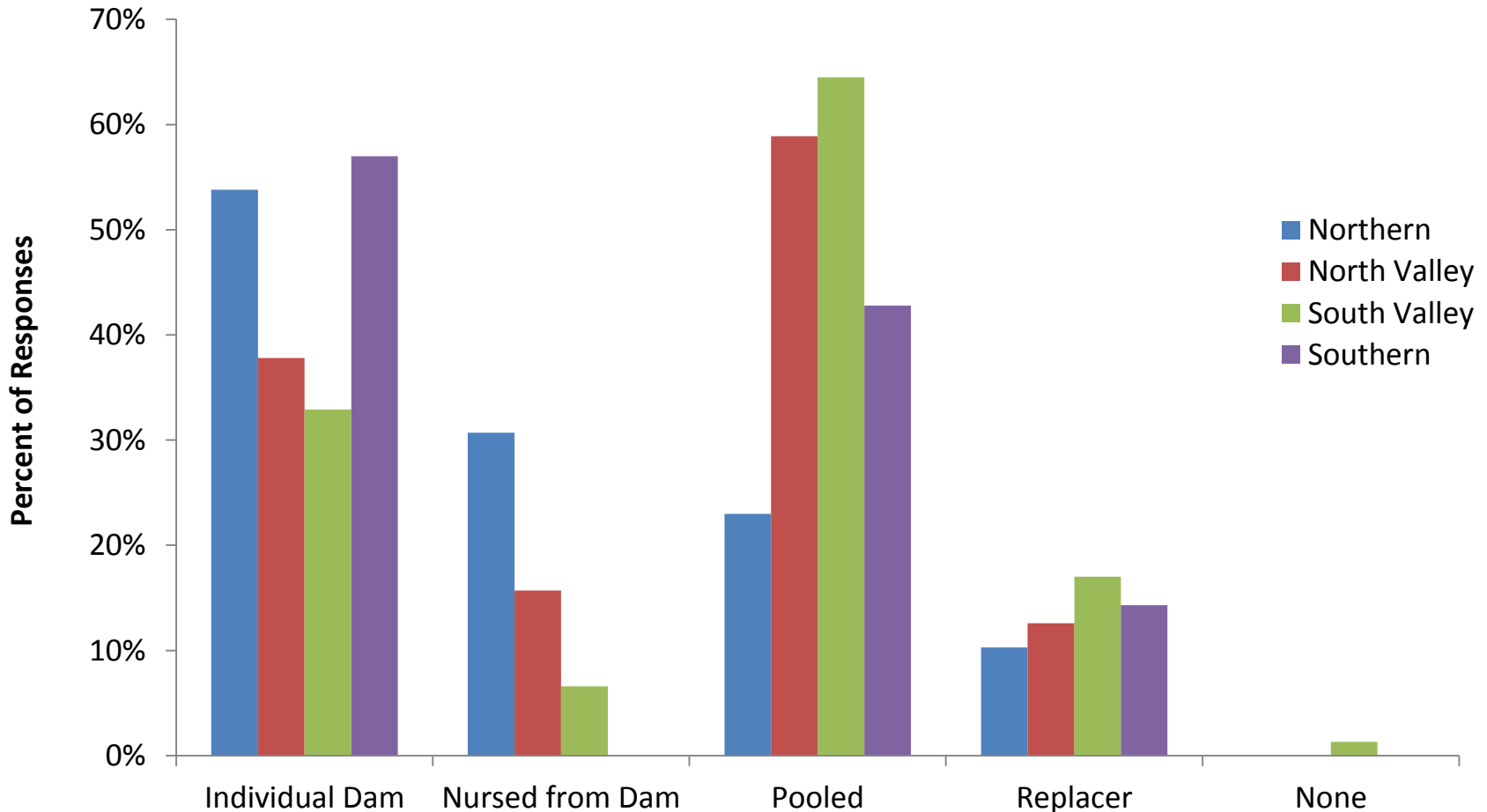
Karle et al. 2014

Colostrum Volume (quarts) in first 12 hours
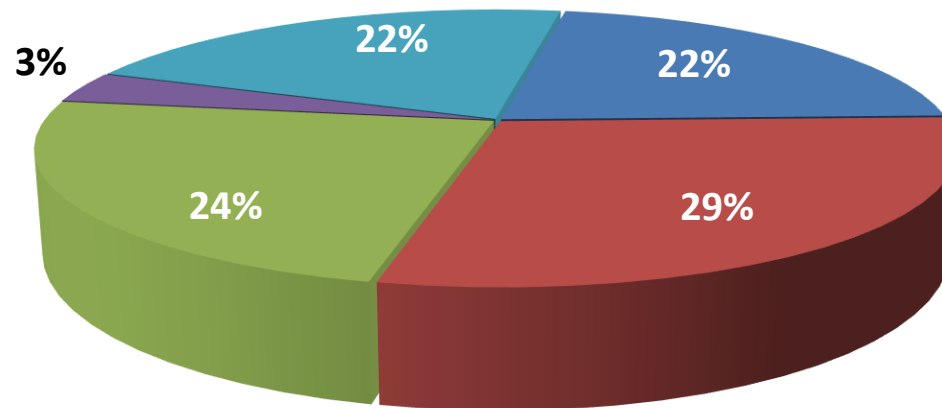
Karle et al. 2015

Source of Milk

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Calf Milk Management
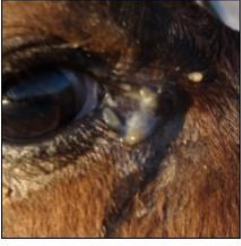
Are any of the following used to treat or supplement the milk or milk replacer?

- ■ Medicated
- ■ Pasteurization
- ■ Milk plus Replacer
- ■ Other
- ■ None

22% — 22% — 3% — 24% — 29%

Karle et al. 2014

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Enfermedad respiratoria sistema bovina (BRD) de puntuación de los lecheros pre-destete[1]

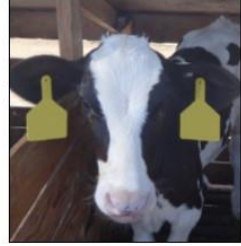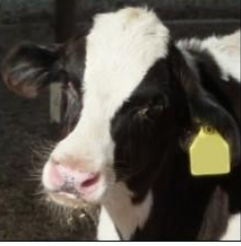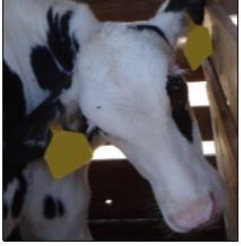| Síntomas Clínicos	Puntos normal		Puntas abnormal (cualquier gravedad)[2]		
Secreción Ocular	0		2	Or	Or
Secreción Nasal	0		4	Or	Or
Oídos Caídos/ Cabeza Inclinada	0		5	Or	Or
Tos	0	No tos	2	Tos Espontanea		
Respiración	0	Normal	2	Respiración Rapida, Dificil, Fatigada		
Temperatura	0	< 102.5° F	2	≥ 102.5° F		

Añadir puntajes para todos síntomas clínicos si la puntuación total es ≥ 5 pantorrilla puede ser positive para BRD

1: Love WJ, Lehenbauer TW, Kass PH, Van Eenennaam AL, Aly SS. (2014) Development of a novel clinical scoring system for on-farm diagnosis of bovine respiratory disease in pre-weaned dairy calves. PeerJ 2:e238 https://peerj.com/articles/238.

2: Cualquier anormalidad incluyendo, pero no limitado a, los ejemplos mostrados en las imágines anteriores.

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