

Pre-Weaned Calf Management: Colostrum & Passive Immunity

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Steps for Success



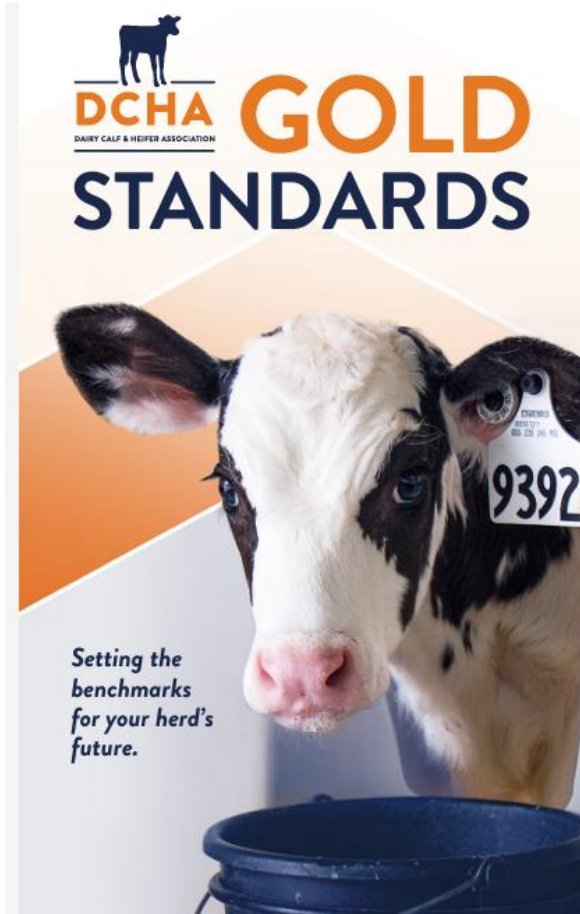
The Study



- 38 herds
- Organic & Conventional
- Colostrum Quality- Brix, IgG, Lactoferrin, Total Protein, Bacteria, Source
- Management Practices- Feeding, Housing, Disease Prevention
- Health & Growth Outcomes- Passive transfer status, Weight, Morbidity, Drug use

Benchmarking Success

Gold Standards



TESTER TYPE	TARGET COLOSTRUM LEVELS
Brix refractometer	≥22%
Lab-based Colostrum IgG	≥50g/L



calfandheifer.org

Figure 3

TARGET PASSIVE IMMUNITY LEVEL MEASURE IN CALVES 2-7 DAYS OF AGE				
PASSIVE IMMUNITY CATEGORY	SERUM IgG CONCENTRATION (G/L)	EQUIVALENT TP (G/DL)	EQUIVALENT BRUX %	% 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	<10.0	<5.1	<8.1%	<10%

*Consensus recommendation for percent of a farm's calves in each category. Modified from Lombard et al., Journal of Dairy Science 2020.



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Results

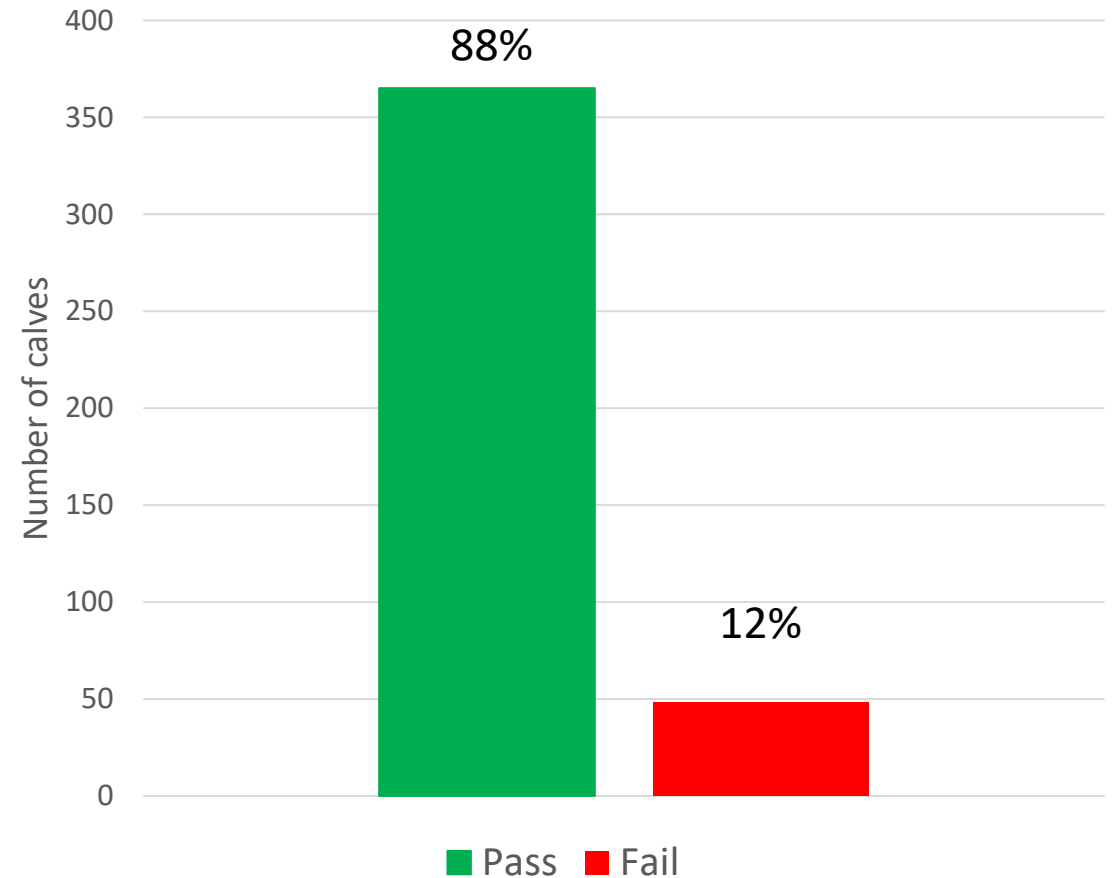


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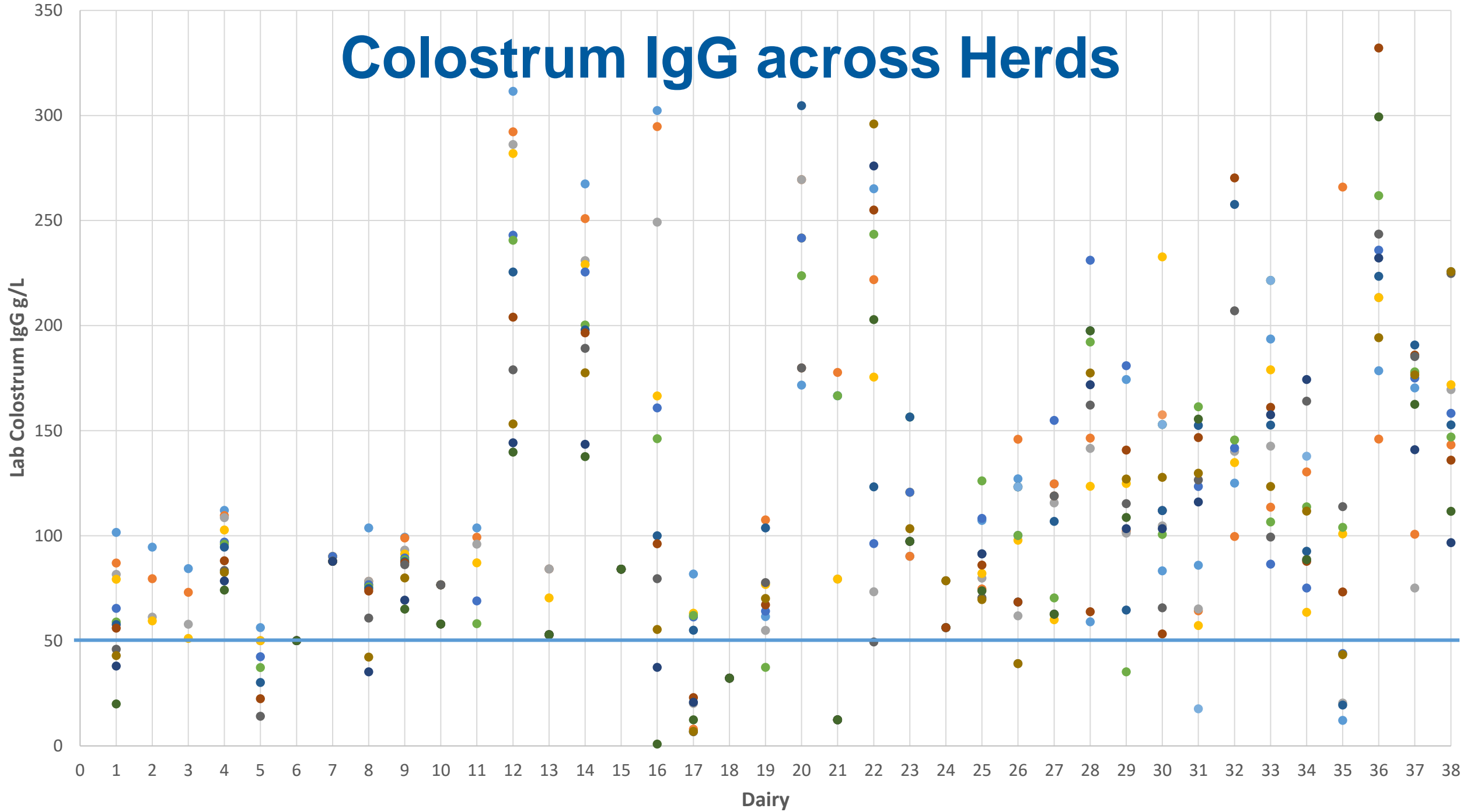
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Colostrum IgG (n = 413)

Colostrum IgG (≥ 50 g/L)		
Pass	365	88%
Fail	48	12%



Colostrum IgG across Herds



Lab-based IgG levels

Sample	Minimum (g/L)	Maximum (g/L)	Average (g/L)	Goal
Colostrum	6.7	332.2	112.4	> 50
Serum	Below range	160.97	37.95	> 25 (excellent)



Target Passive Immunity Level* (n = 444)

Serum IgG result	Number Calves	Percent	Goal
Excellent (≥ 25.0)	327	74%	> 40%
Good (18.0-24.9)	46	10%	~ 30%
Fair (10.0-17.9)	40	9%	~20%
Poor (≤ 10.0)	31	7%	< 10%

*Measured in calves 2-7 days of age



Bacteria (n = 290)



Bacteria	N
<i>S. aureus</i>	26
<i>E. Coli</i>	9
<i>Myco. bovis</i>	12

Colostrum Management

- ✓ Feed within 6 (2?) hours of birth
- ✓ Test before feeding
- ✓ First milking whenever possible
- ✓ From well-vaccinated cows
- ✓ Consider heat treating
- ✓ Storage and Handling
- ✓ Monitor passive transfer
- ✓ 3 Q's



Next Steps

- Lactoferrin
- Management practices
- Treatment outcomes
- Additional Bacteriology
- Intervention strategies



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