



“Milking” more from the Post-Weaning Fecal Egg Count Estimated Breeding Value

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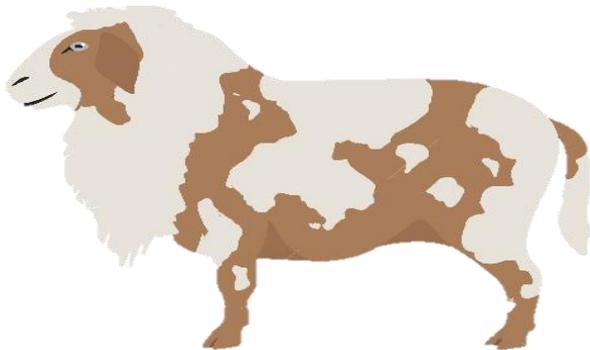


Introduction

PFEC < -50

PFEC $-49 < x < +49$

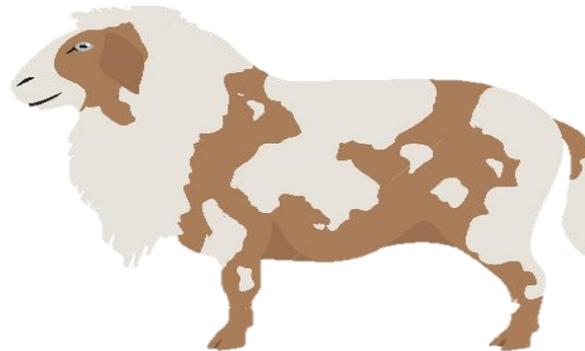
PFEC > +50



Parasite *Resistant*

or

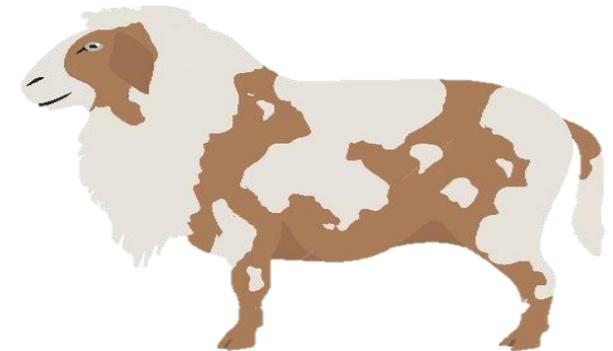
Low Katahdin



Intermediate

or

Mid Katahdin

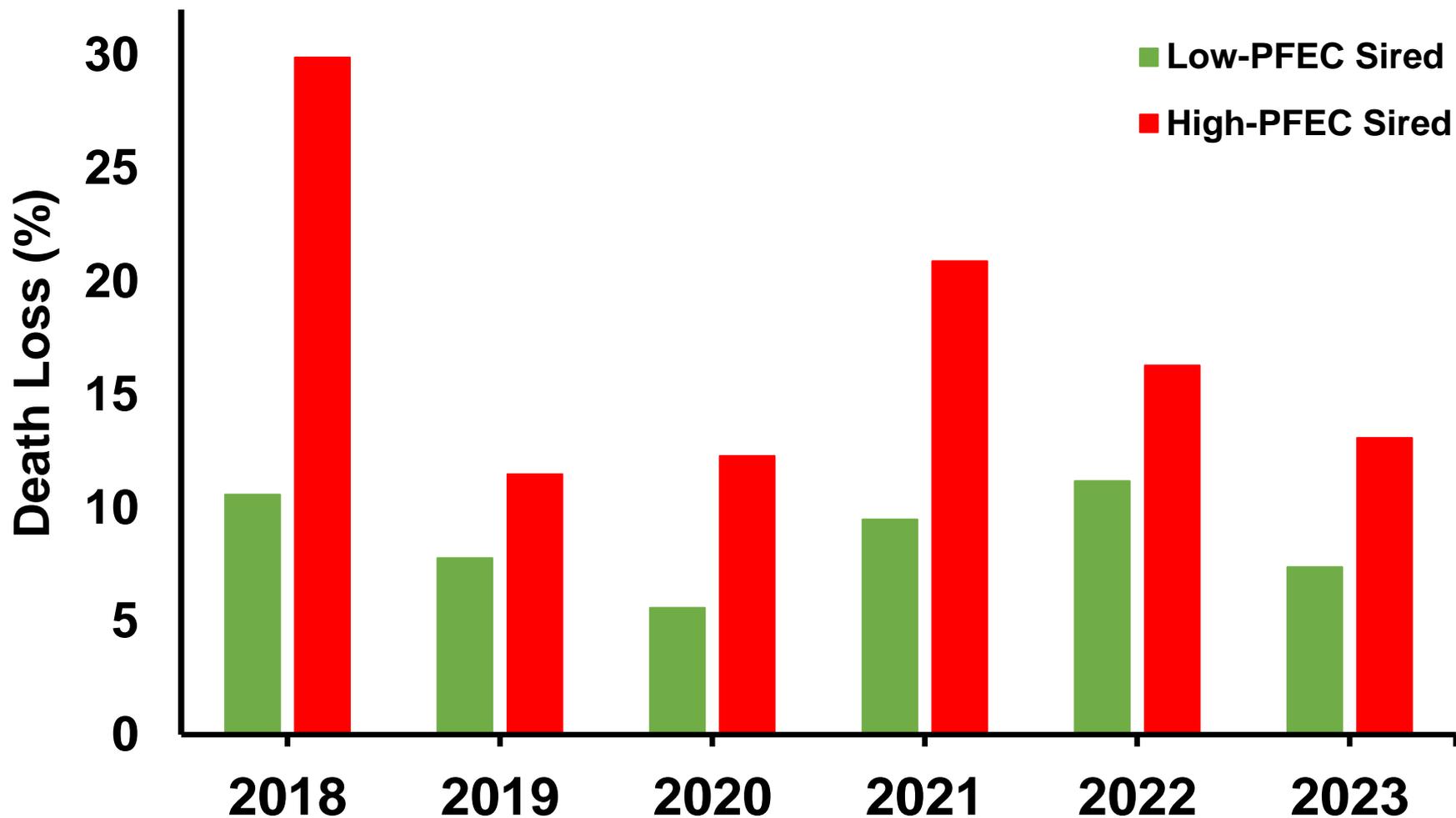


Parasite *Susceptible*

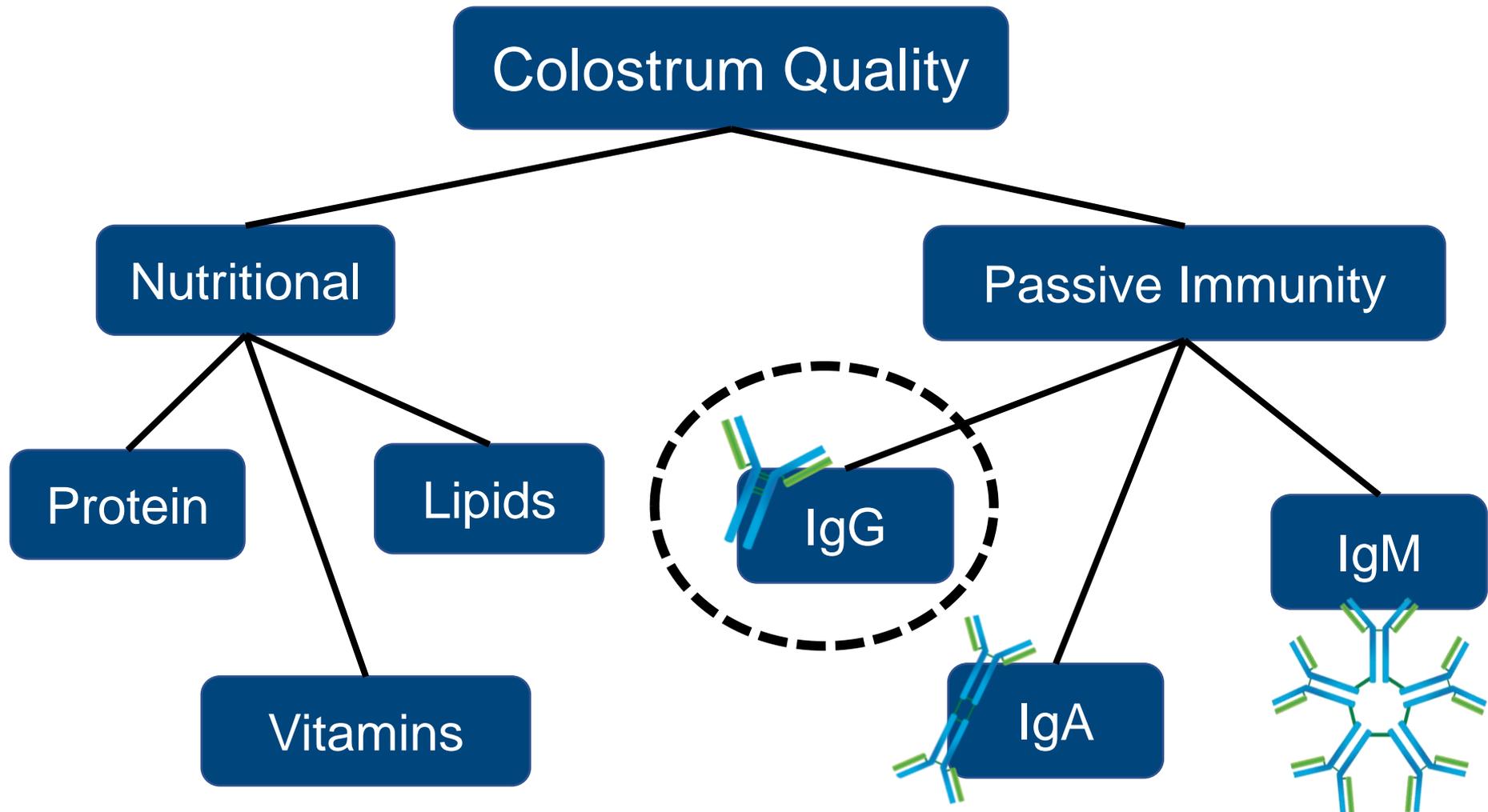
or

High Katahdin

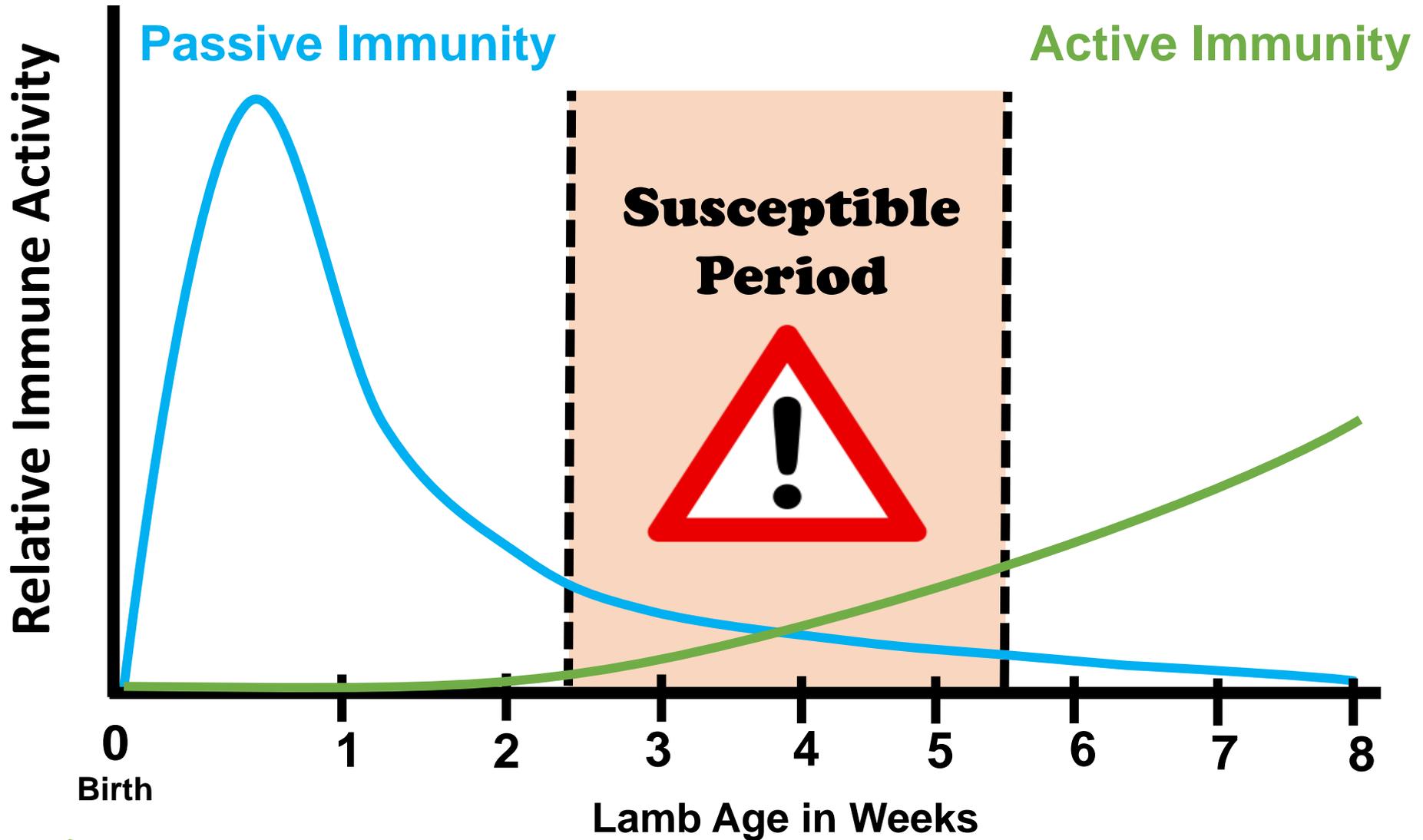
Lamb death loss at SWAREC 2019-2023



What is the value of colostrum?



Immune Protection



Milk Breeding Scheme – Year 1

Early :
While ewe is in
jug (0 ≈ 48 HRs)

Mid :
≈ 30 days post-
parturition

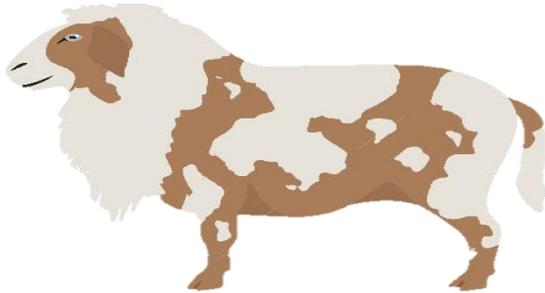
Late :
≈ 60 days post-
parturition

Ewe Criteria

1. **Age** – Between 2 and 6 years old
2. **Index** – Hair Index > 104
3. **Lambing** – Twin bearing/rearing
4. **PFEC** – LoKAT Range -68 : -99
– HiKAT Range +101 : +374

PFEC < -68

PFEC > +101



Low Katahdin

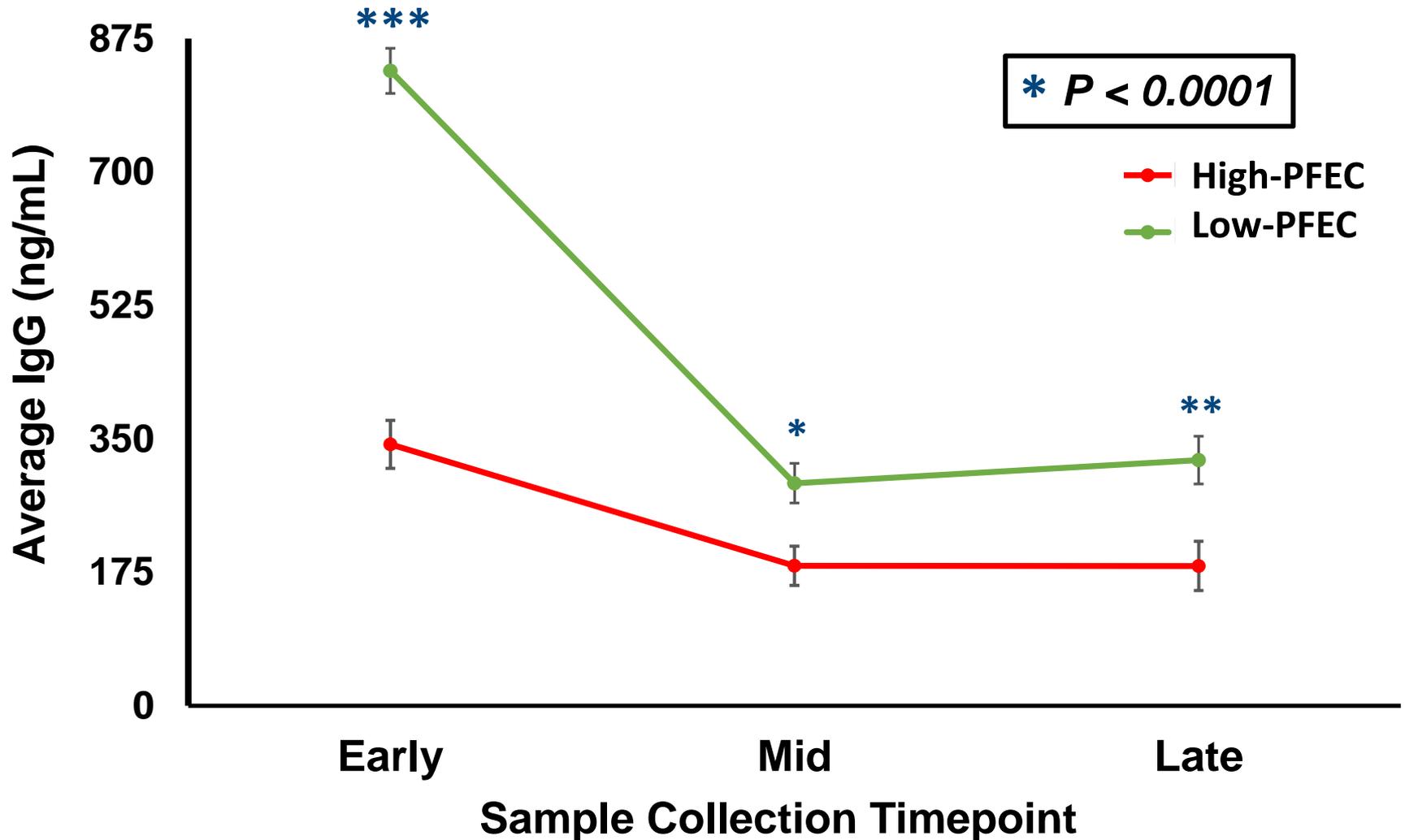
(n = 18)



High Katahdin

(n = 20)

Average IgG in Dialyzed Milk by Timepoint Year 1



Milk Breeding Scheme – Year 2

PFEC < -50

PFEC $-49 < x < +50$

PFEC > +50



Low Katahdin



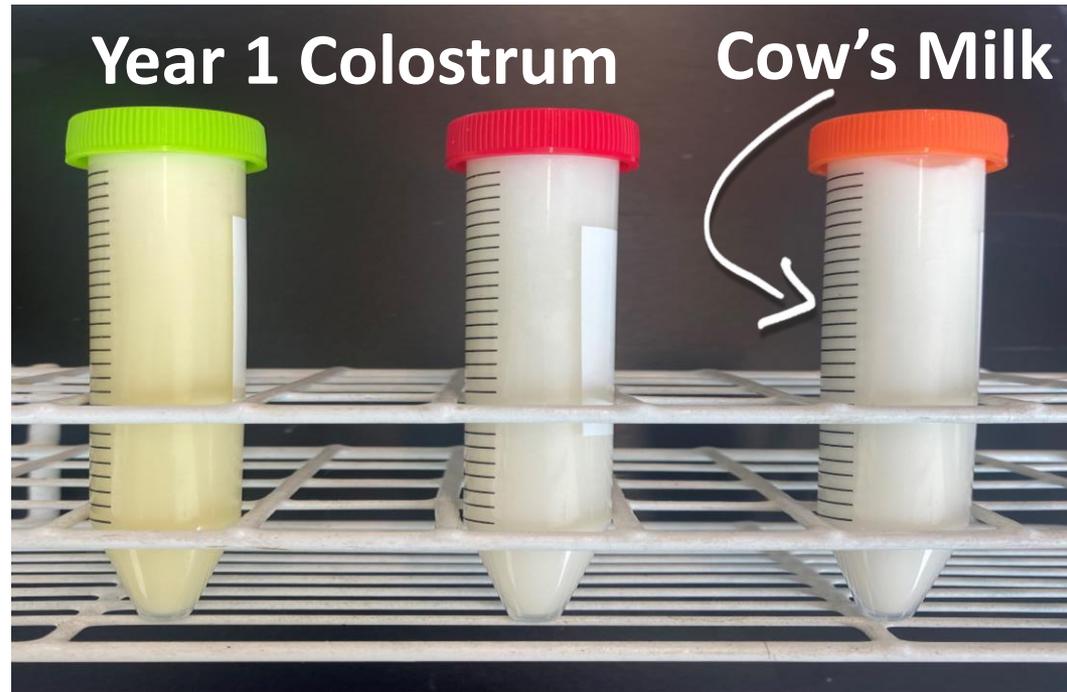
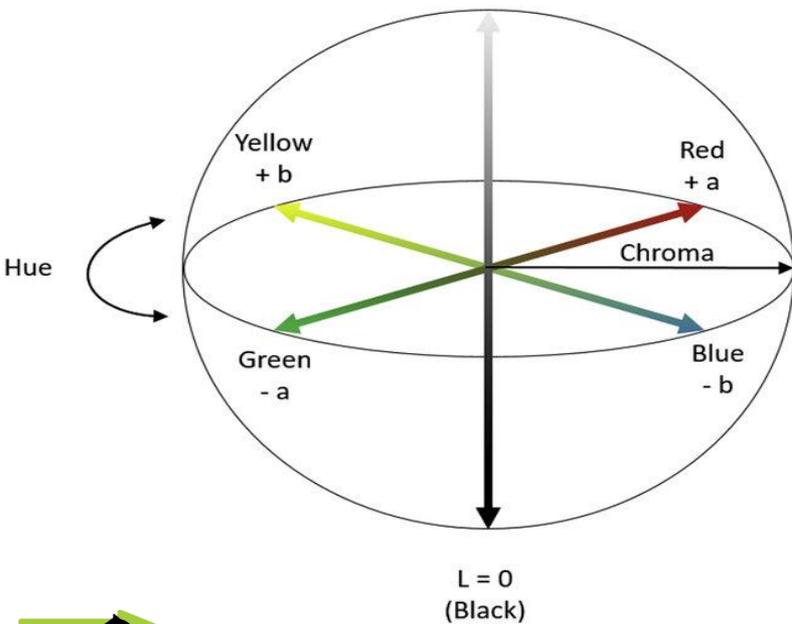
Mid Katahdin



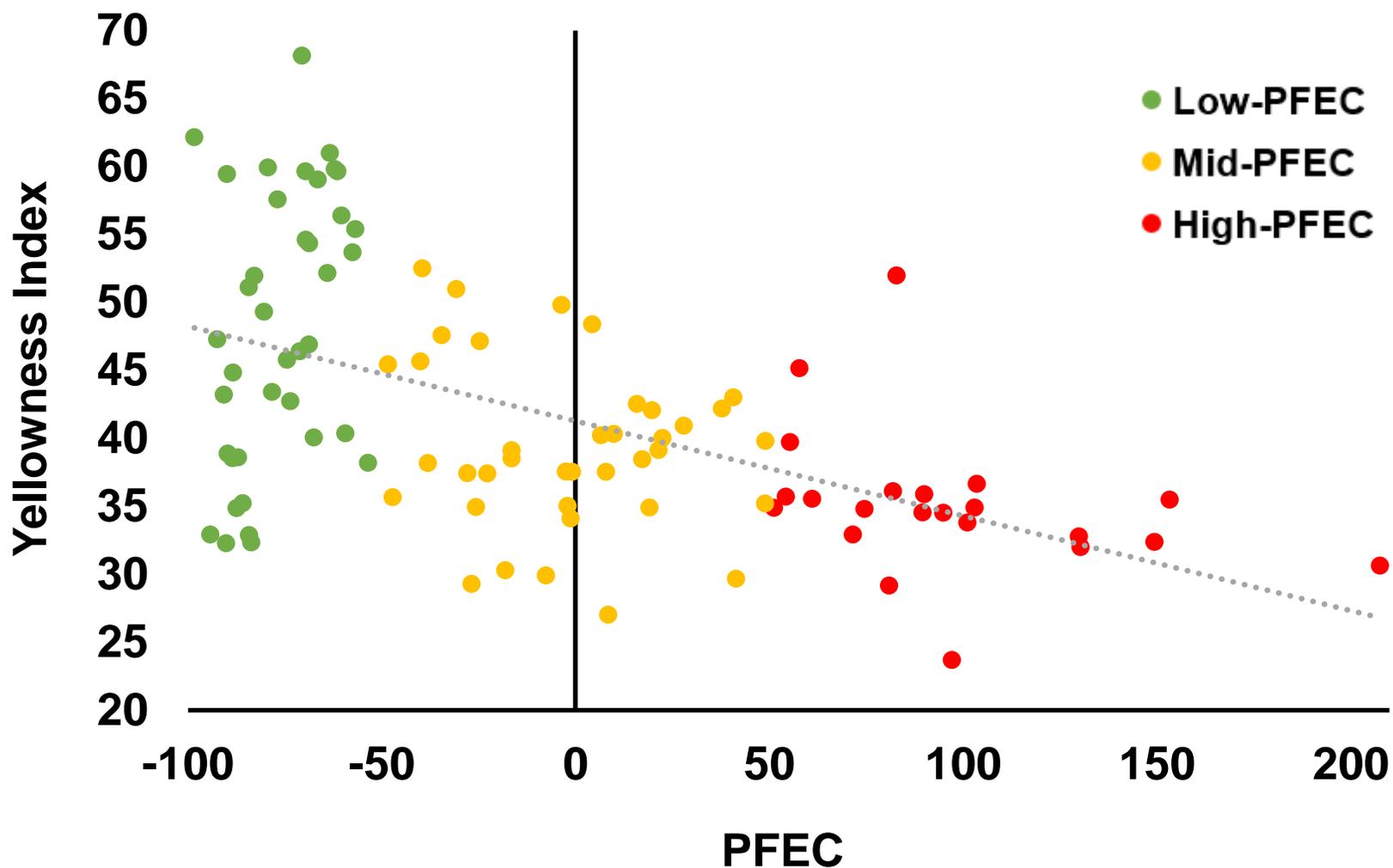
High Katahdin

L = 100
(White)

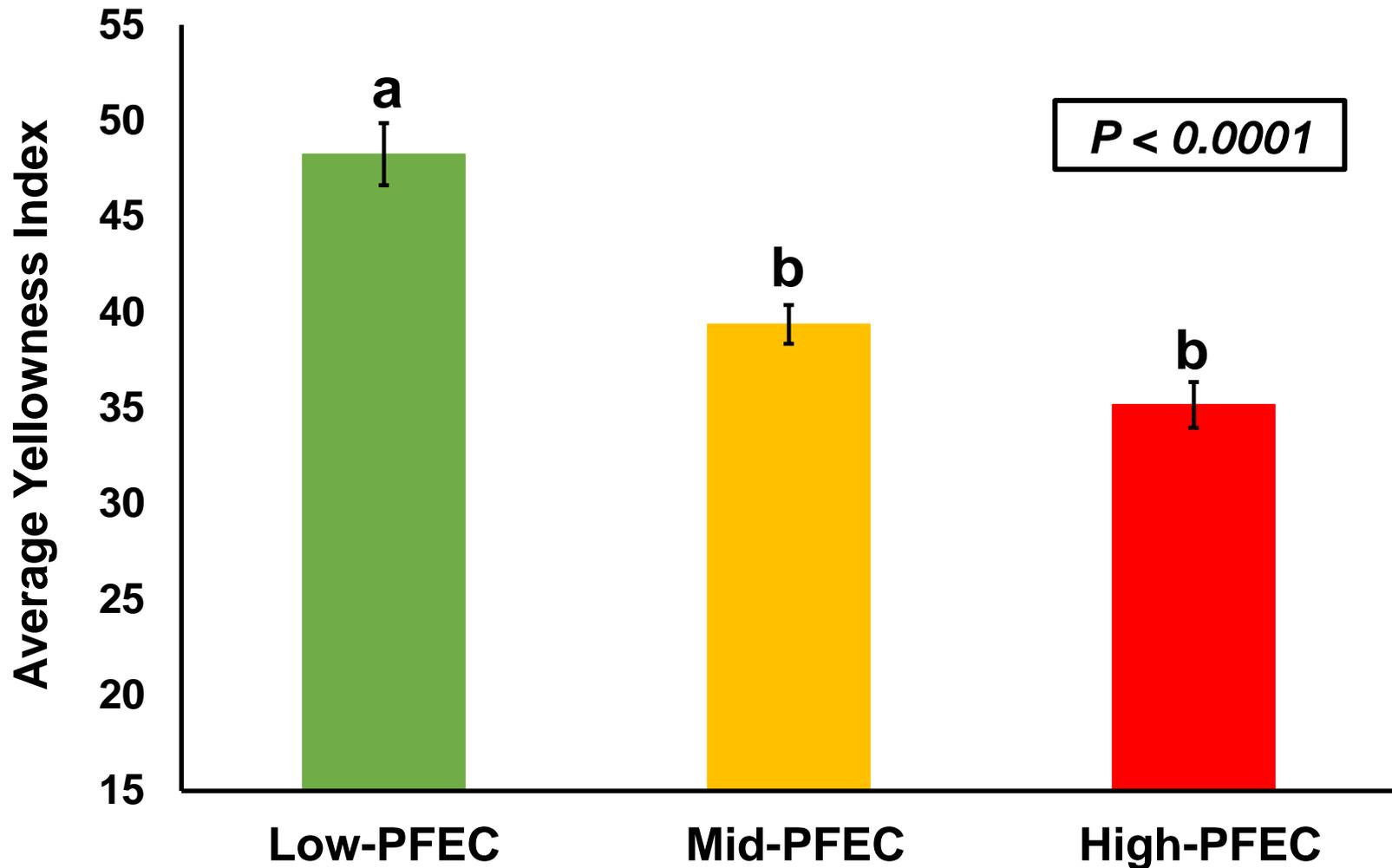
L = 0
(Black)



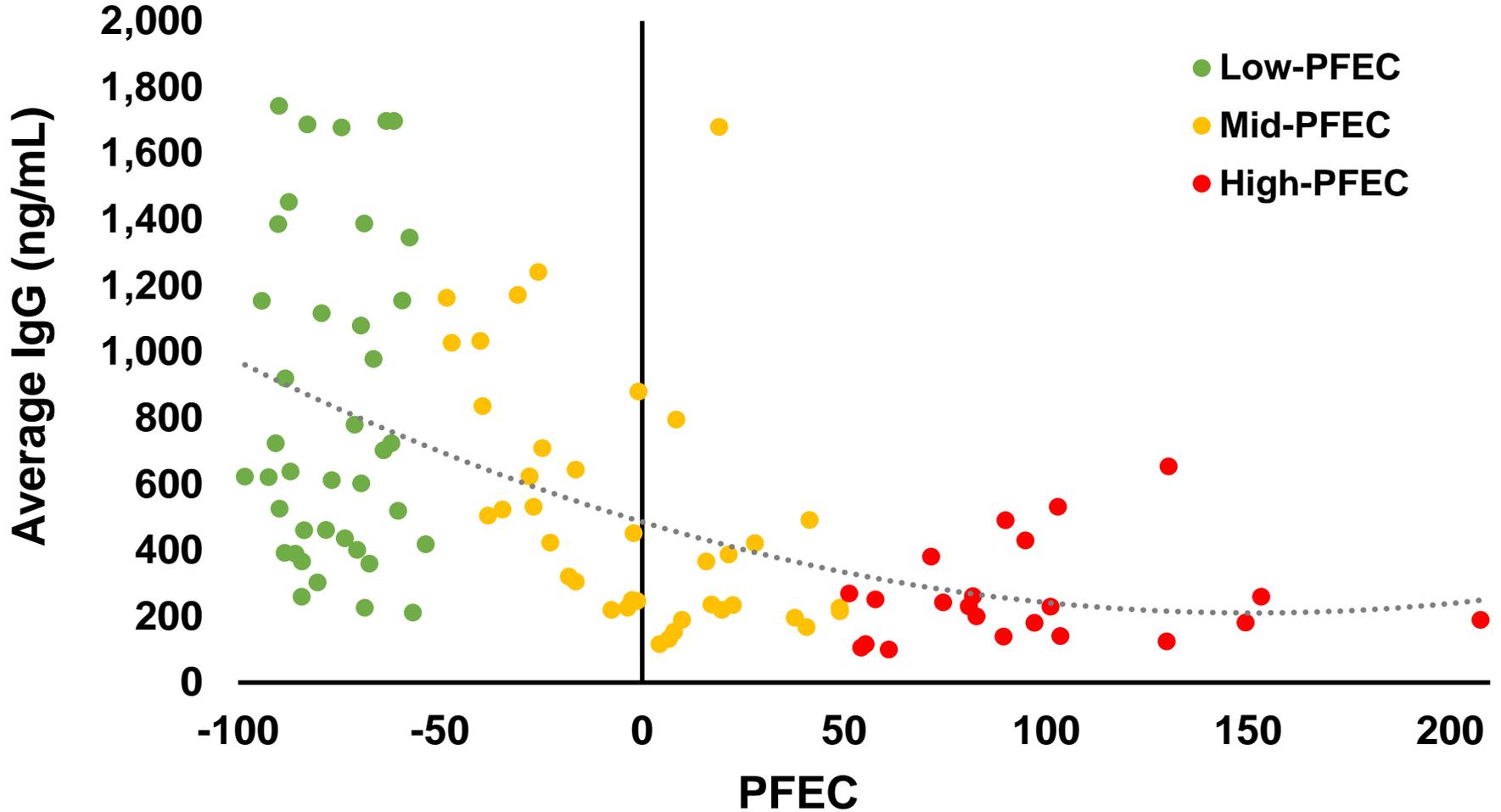
Colorimeter Measurements of Colostrum Year 2



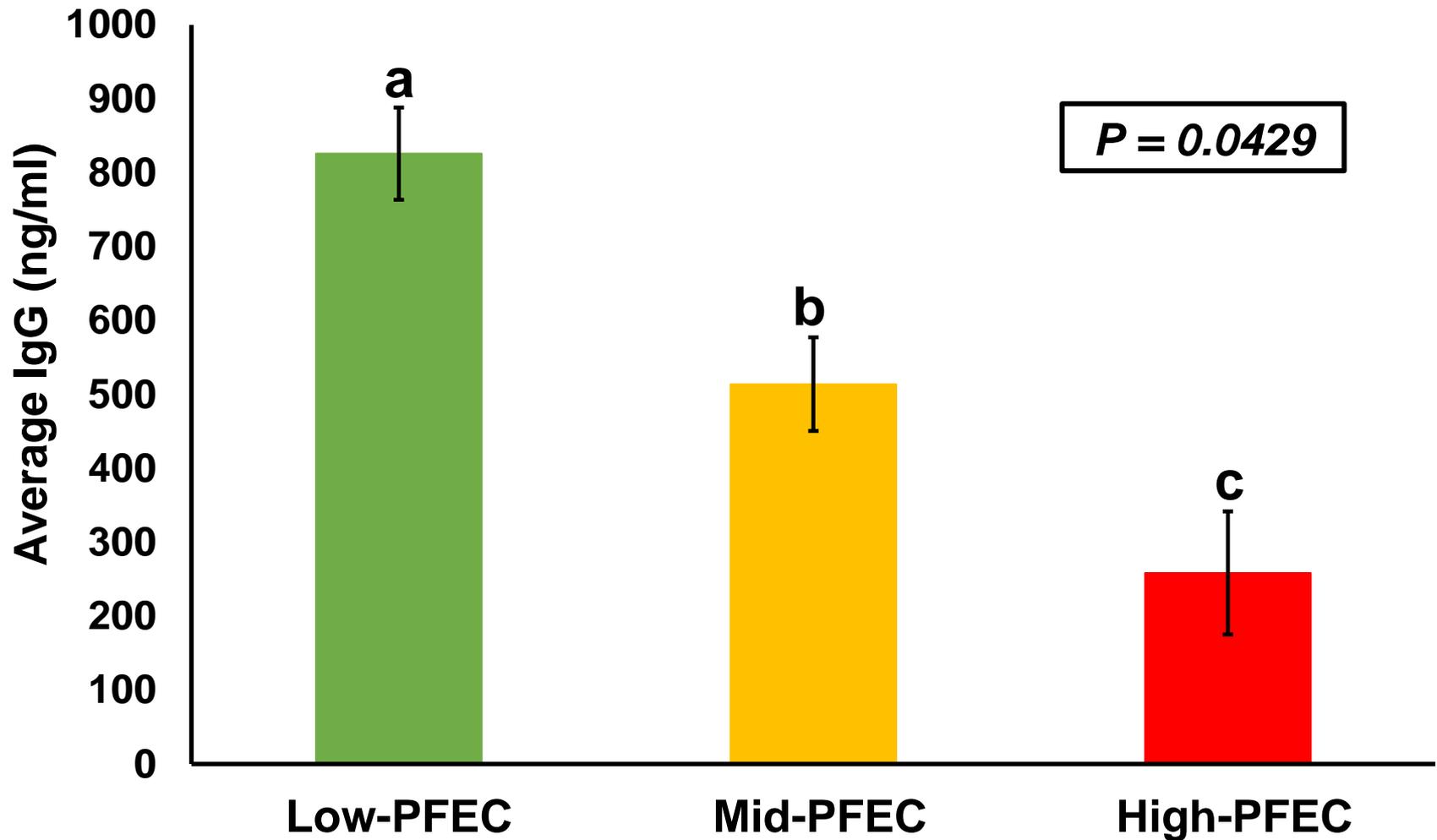
Colorimeter Measurements of Colostrum Year 2



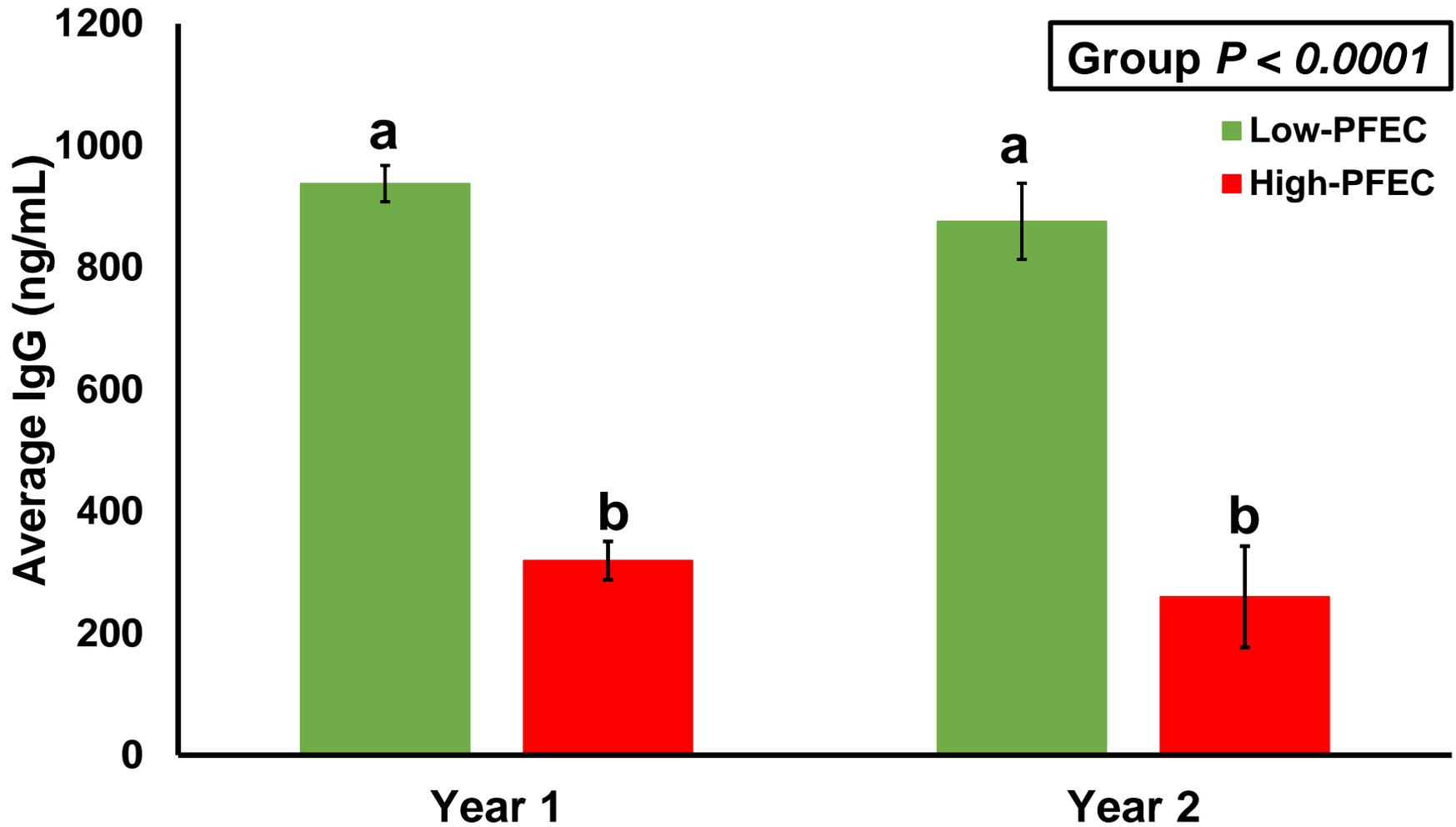
IgG Measurements of Colostrum Year 2

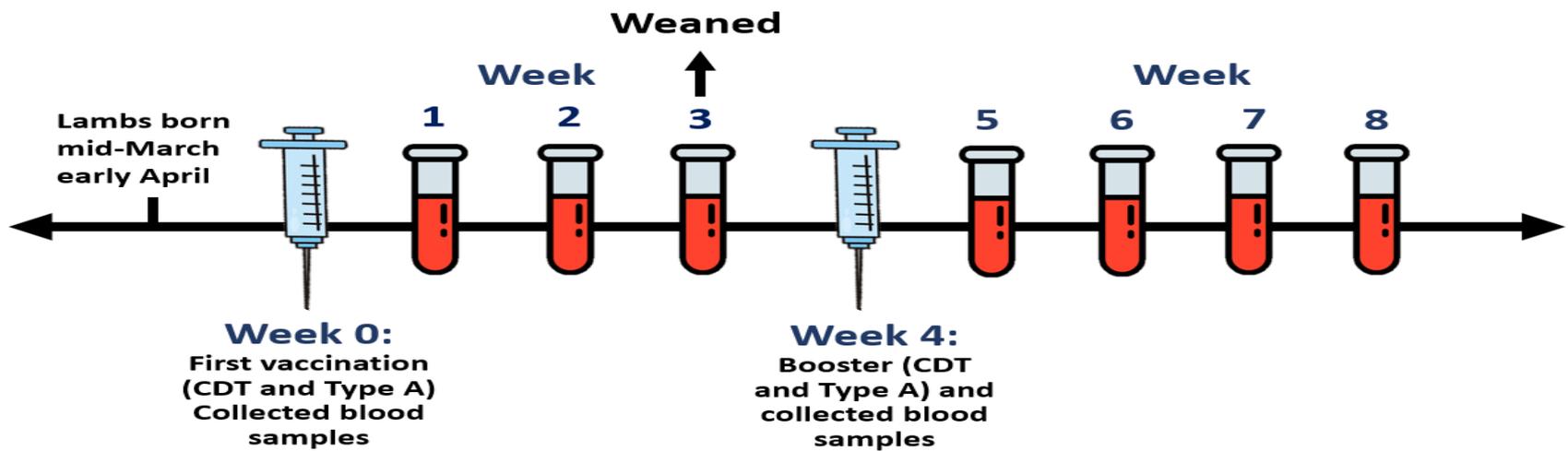


IgG Measurements of Colostrum Year 2

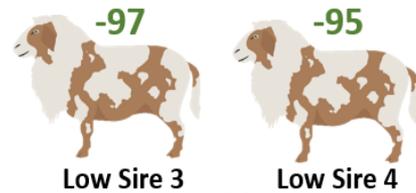


Average IgG of Colostrum Across Years





PFEC



Mated to Low Ewes

Low Offspring

PFEC

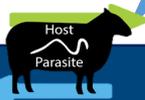


Mated to High Ewes

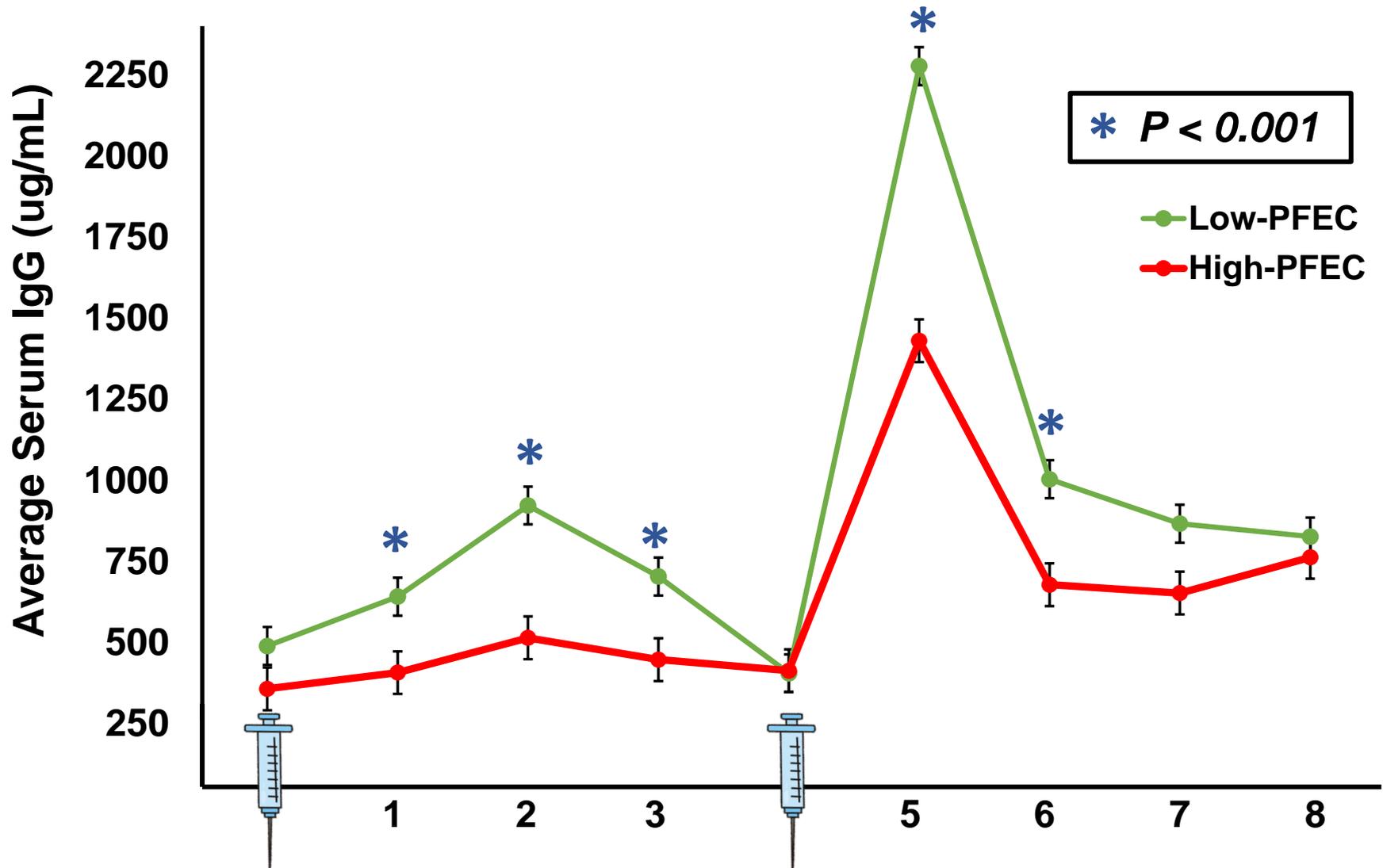
High Offspring

*All progeny managed as one contemporary group

What are some ways in which we can quantify immune response?



Average IgG of Lambs to CD&T Vaccination



A video is worth a thousand words...



Low Katahdin



High Katahdin

By selecting for Low PFEC EBV Katahdin sheep producers are also receiving...

1. A reduction in lamb death loss
2. Katahdin ewes that produce more IgG within their colostrum
3. Sheep that respond better to vaccination
4. Sheep with less severity and duration of sickness



However, this must come at a cost... are we sacrificing other important production traits like growth???

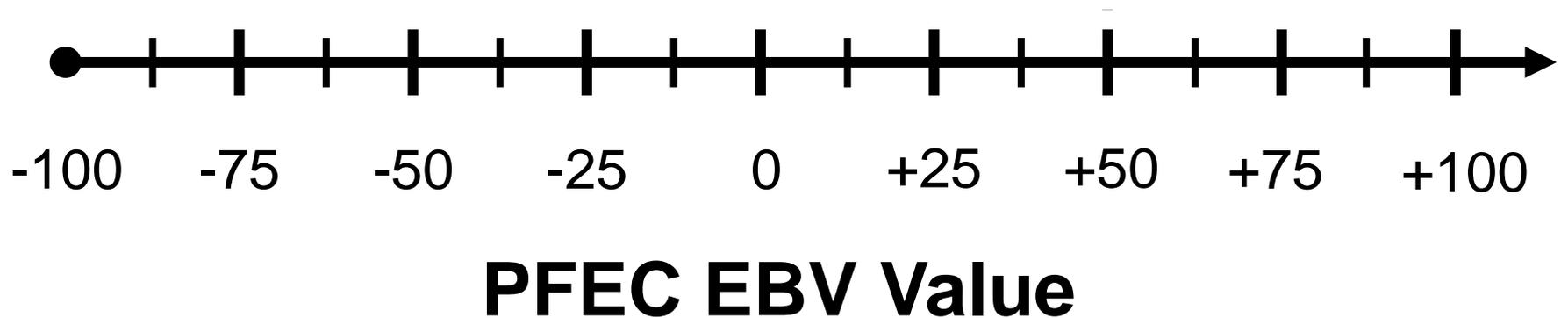
According to my data the answer is...

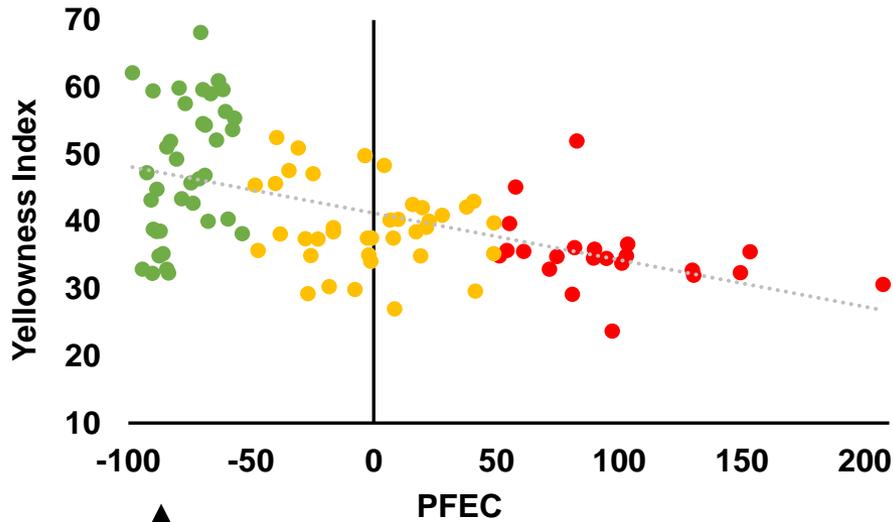
Group ID	PFEC Range	n	EBV ¹			Hair Index ²
			PFEC (%)	MWWT ² (kg)	PWWT ² (kg)	
Low PFEC	-99 : -50	56	- 75	0.37 ± 0.06	1.74 ± 0.19	101.8 ± 0.30
Mid PFEC	-46 : +49	53	+6	0.30 ± 0.05	1.97 ± 0.17	102.1 ± 0.25
High PFEC	+51 : +229	46	+124	0.28 ± 0.04	2.21 ± 0.21	102.3 ± 0.26
Breed Average ³	-	-	-27	0.56	2.30	102
<i>P</i> value	-	-	< 0.0001	0.43	0.20	0.15

Selection for immune function does not necessarily mean you are negatively influencing growth



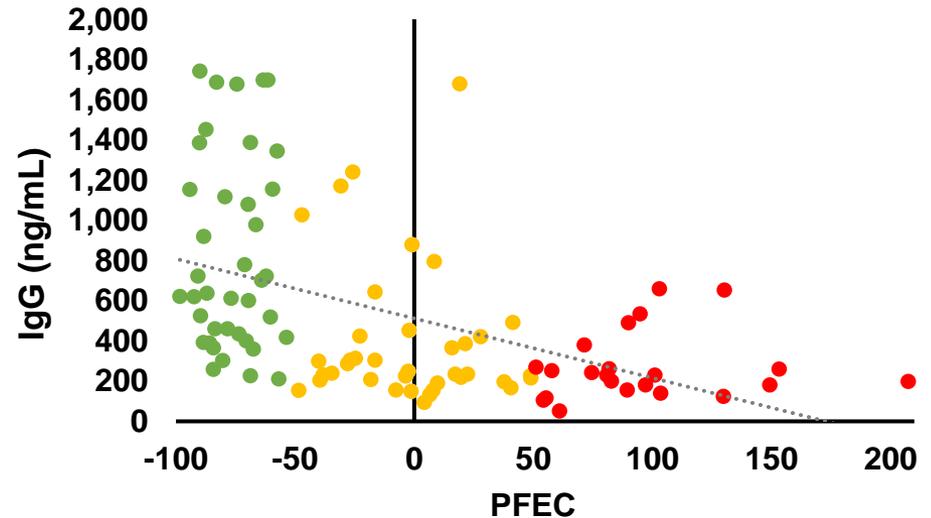
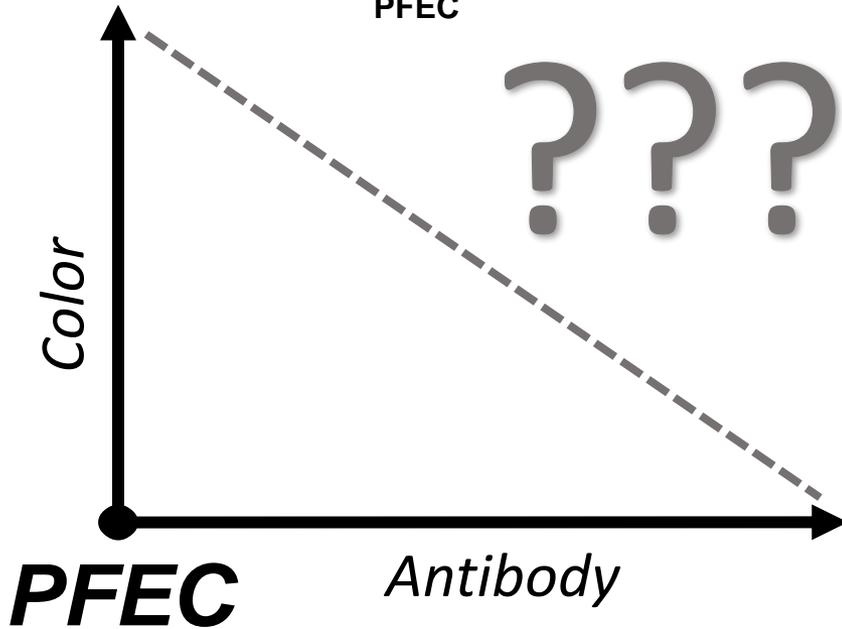
Average IgG based on PFEC genotype?





Next steps...

Nutritional Analysis



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