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## Introduction

The immunological quality of colostrum is crucial as it provides passive immunity to the newborn naïve piglets which is essential for their survival, long term health and lifetime performance.

Laboratories can test the immunoglobulin content of colostrum, but it can be expensive and slow.

IgG content of colostrum can be analysed rapidly, on-farm with the use of a Brix refractometer (Hasan et al., 2016). This offers producers the ability to differentiate between very good and poor-quality colostrum at the pen side.

Colostrum quality parameters such as fat content have previously been correlated to reproductive performance indicators such as number of liveborn piglets (Declerck et al., 2015).

## Objective

To assess if classification of sow colostrum using a Brix refractometer can be utilised as a predictor for sow reproductive performance

## Key Points

- A large proportion of sows, **37%**, produce **sub-optimal colostrum**
- Brix is a simple, cost-effective method to aid producers understanding of herd status
- Optimal colostrum **increases piglets born alive** and **lower stillborn rate**

## Materials & Method

A total of 952 multiparous sows obtained from 5 different commercial breeding sites were utilised in the evaluation. The study included commercial breeding units from United Kingdom, Ireland and South Africa to ensure a diverse range of breeding genetics

Fresh colostrum samples (0.3ml) were obtained from each sow within 0-3 hours from the onset of farrowing. Each sample was analysed immediately using a Brix Refractometer to determine the IgG content of each sample.



Colostrum Classification		
Classification 1	Classification 2	Brix value, %
Poor	Sub-Optimal	<20
Borderline		20-24.9
Adequate	Optimal	25-29.9
Very Good		>30

All samples were classified according to the above classification table. The data were analysed using a linear-effects model fitted by REML, with Brix classification and parity as fixed effects and farm as a random effect. Reproductive parameters measured included total number of piglets born alive and percentage of stillborn piglets per litter.

## Results & Discussion

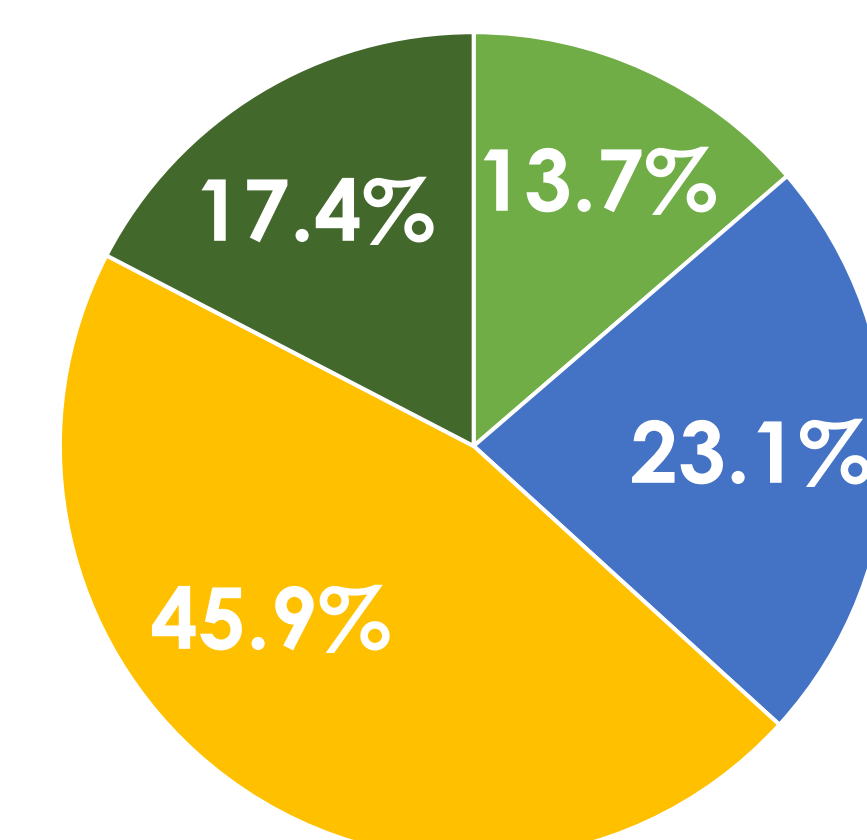
Colostrum classification 1 indicated that 13.7% of sows produced poor, 23.1% borderline, 45.9% adequate and 17.4% very good quality colostrum.

Utilising colostrum classification 2 demonstrated that a substantial proportion of sows, 36.8%, produced suboptimal colostrum.

Sows that produced suboptimal colostrum tended to have fewer piglets born alive, 16.4 piglets, compared to sows producing optimal colostrum, 17.14 piglets. Differences in still birthrate were more pronounced: optimal colostrum sows had significantly fewer piglets born dead than suboptimal (8.1% vs 9.4%).

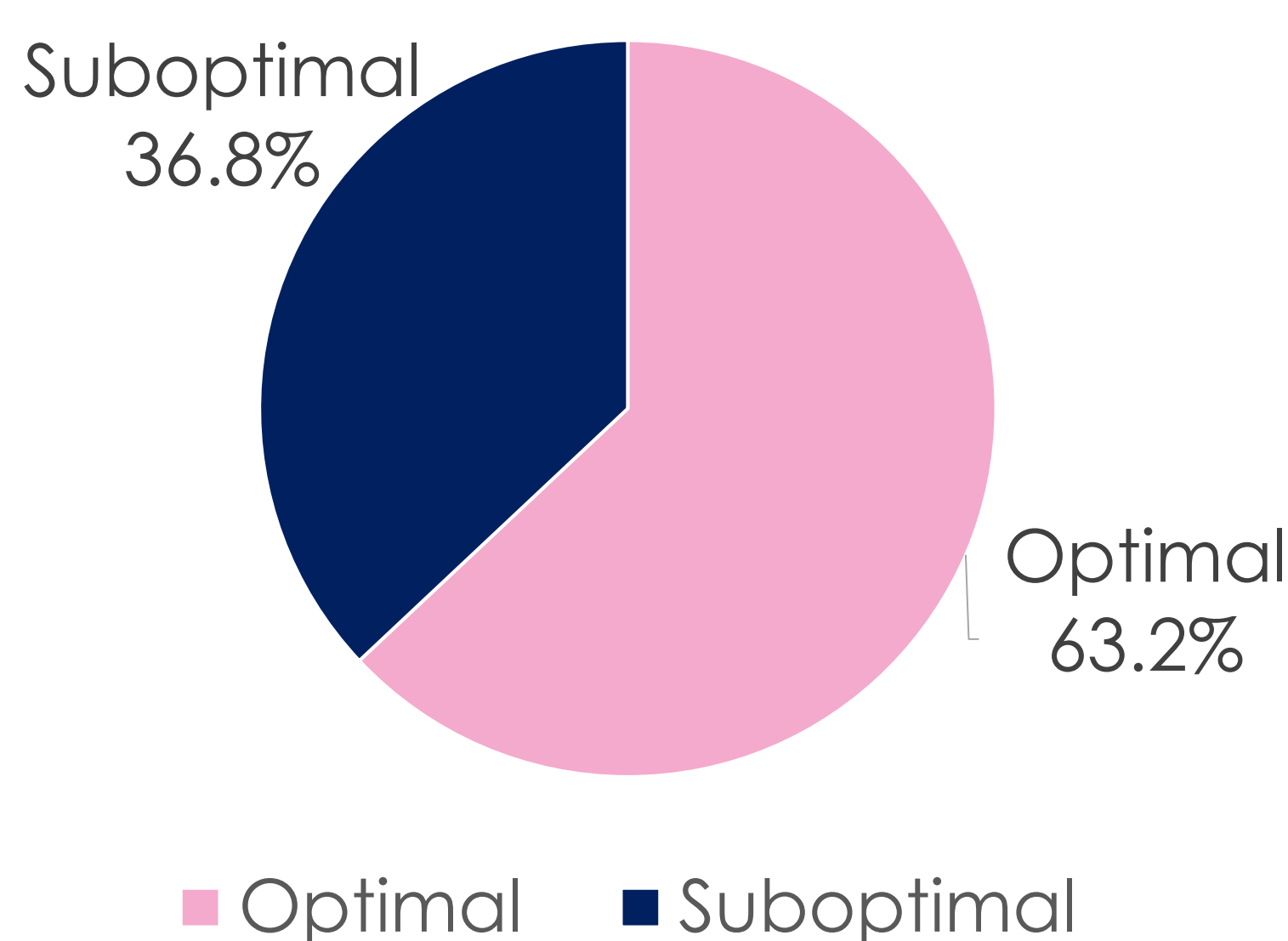
These results suggest that colostrum quality, beyond its established role in passive immunity, may also reflect underlying maternal performance and physiological status.

### Colostrum Classification 1



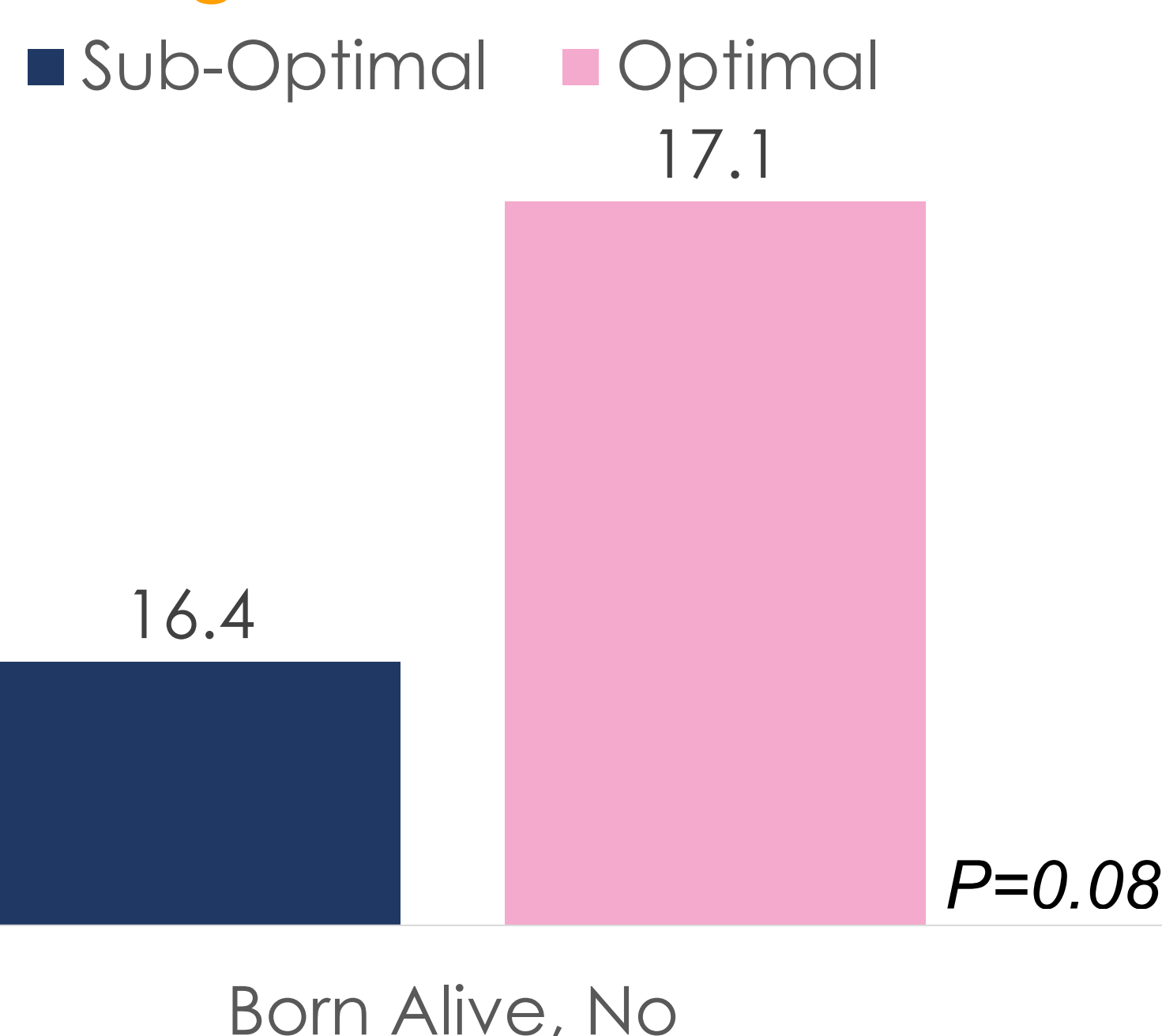
■ Poor ■ Borderline  
■ Adequate ■ Very Good

### Colostrum Classification 2



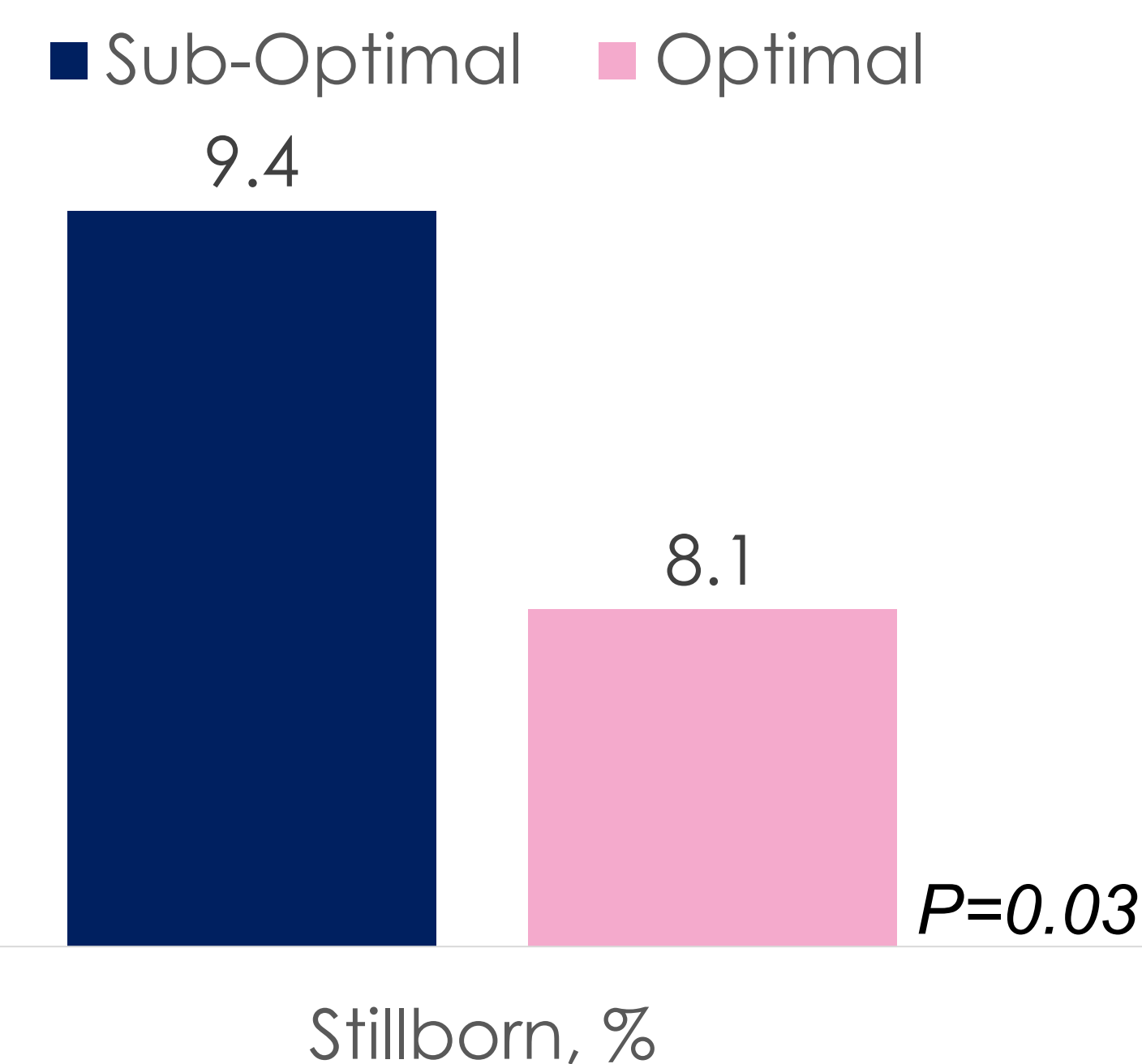
■ Optimal ■ Suboptimal

### Piglets born alive



Born Alive, No

### Stillborn %



Stillborn, %

## Conclusion

Sows producing optimal colostrum had improved reproductive performance.

A large proportion of sows produce sub optimal colostrum, indicating a vast opportunity to improve reproductive productivity.

Brix classification of sow colostrum provides a simple, rapid and cost-effective method to help producers understand the status of their herds and implement solutions to improve colostrum quality and drive improvements in reproductive performance and economic returns.

## Acknowledgements & References

HASAN SMK, JUNNIKALA S, VALROS A, PELTONIEMI O, OLIVIERO C. 2016. Validation of Brix refractometer to estimate colostrum immunoglobulin G content and composition in the sow. *Animal*

Declerck, I., Dewulf, J., Piepers, S., Decaluwé, R. and Maes, D., 2015. Sow and litter factors influencing colostrum yield and nutritional composition. *Journal of animal science*, 93(3), pp.1309-1317.