

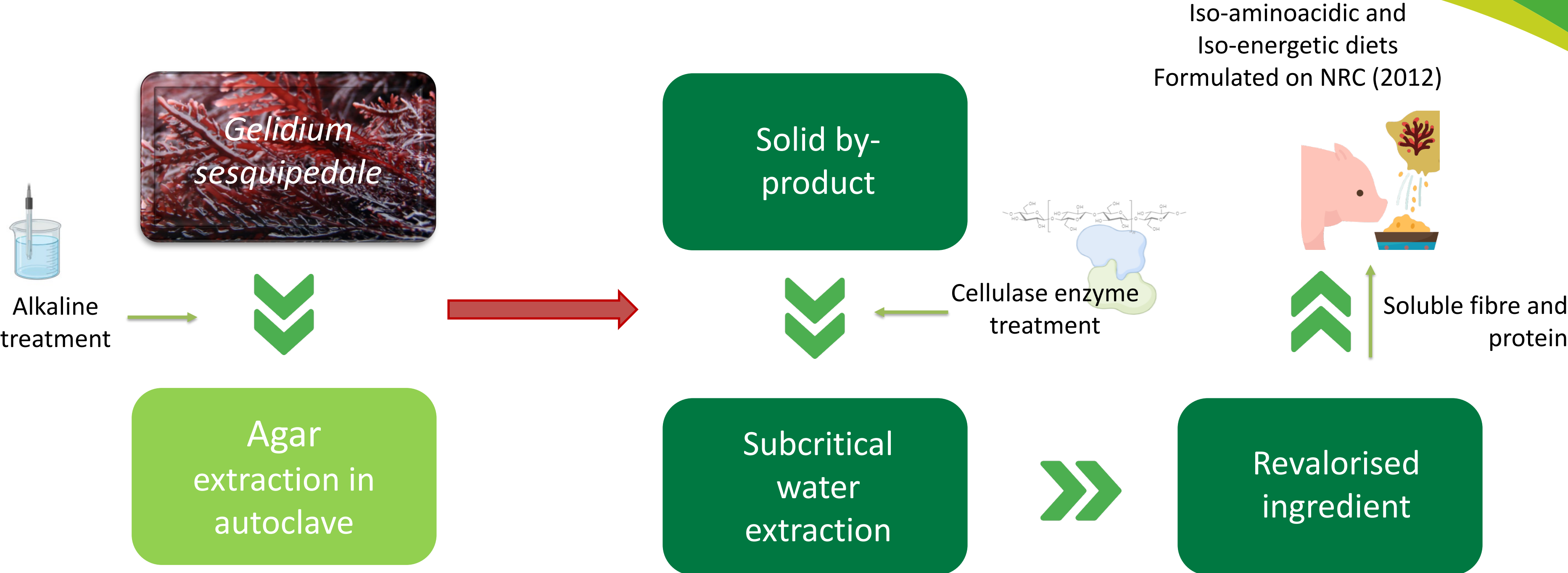


Effect of dietary inclusion of a *Gelidium sesquipedale* revalorised ingredient on growth, haematology, intestinal histology and gene expression in newly weaned pigs

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Revalorised ingredient – *Gelidium*



Agar

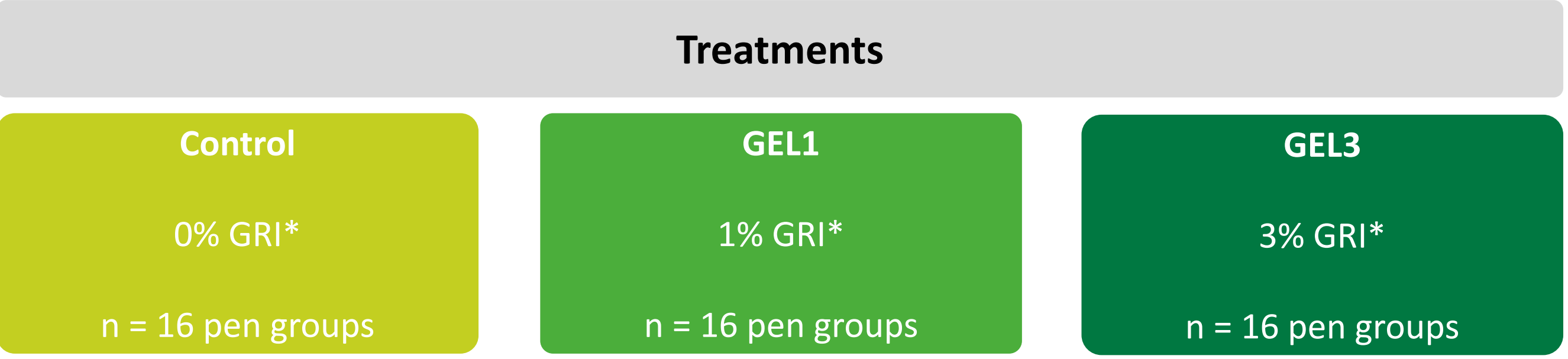


Aim

Evaluate the effect of replacing conventional feed ingredients with a *Gelidium* revalorised ingredient (GRI) on growth, haematology, intestinal histology, mRNA data and microbiota composition in post-weaning pigs



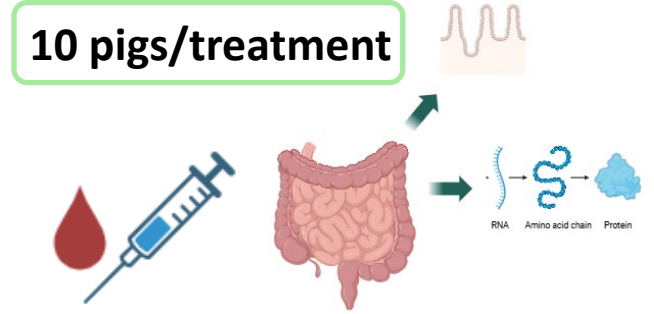
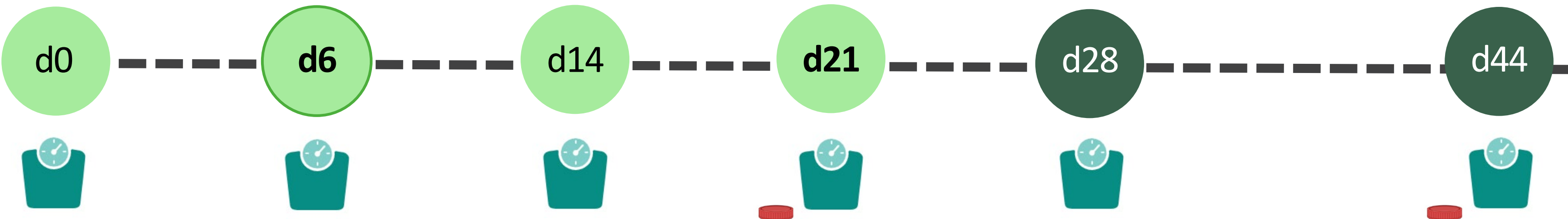
Material and methods



Weaning

*Gelidium harvested between July and September 2023 on the north coast of Spain

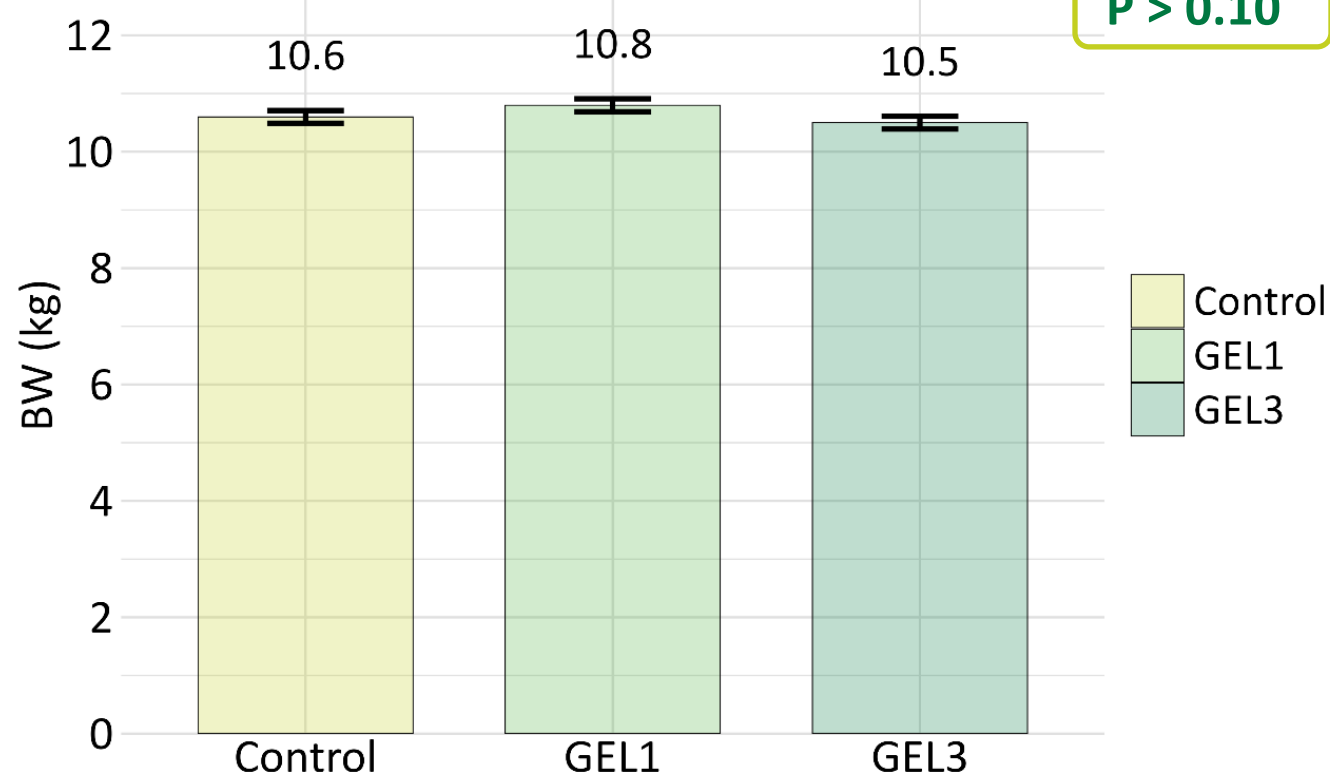
29±0.95 days;
9.30±0.05 kg



Growth results – d0-d6

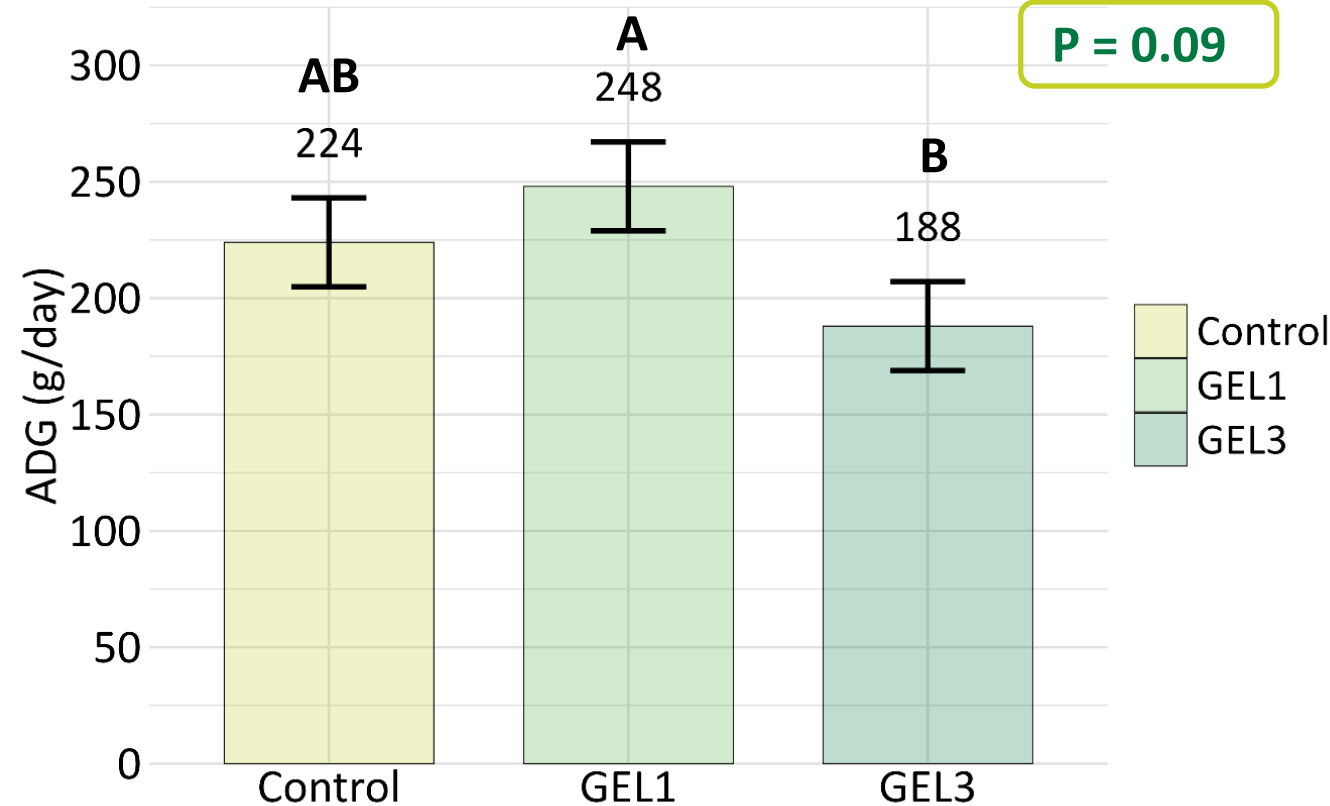
Body weight (d6)

P > 0.10



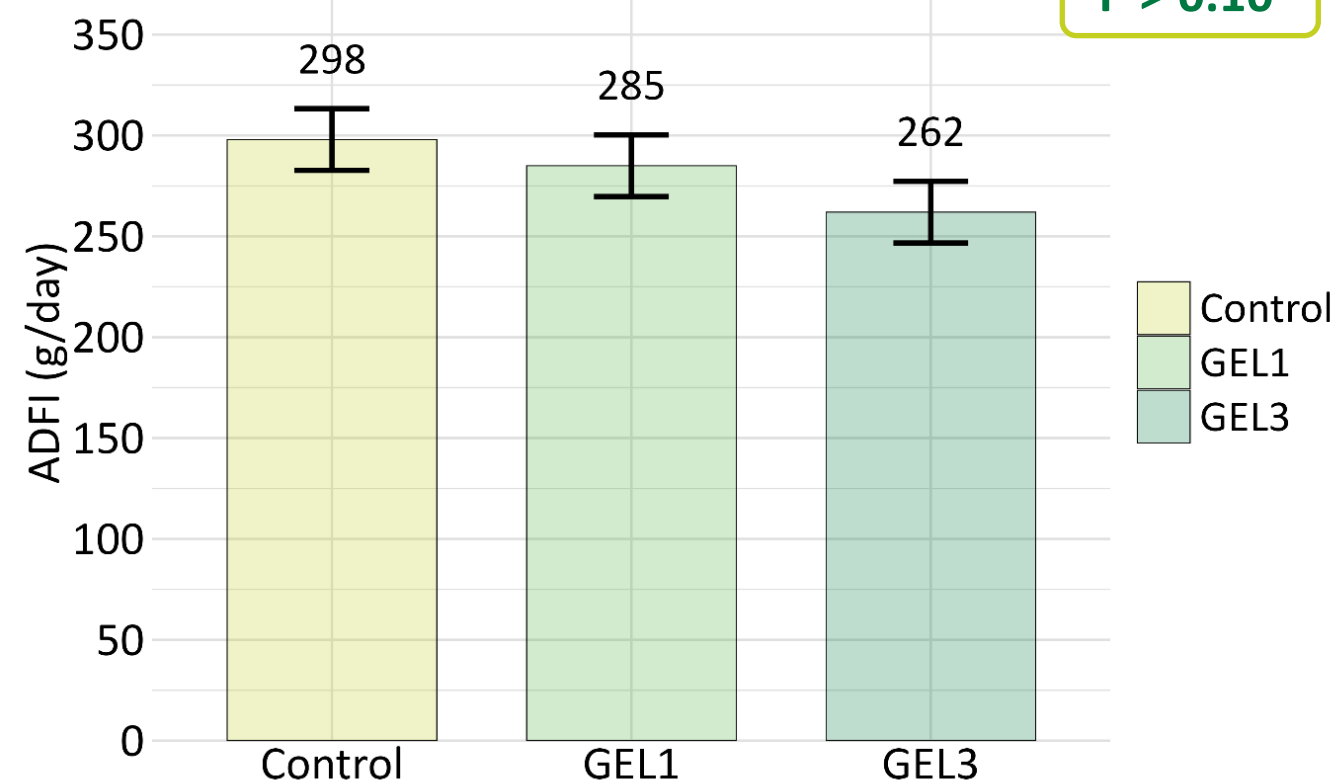
Average daily gain (d0-d6)

P = 0.09



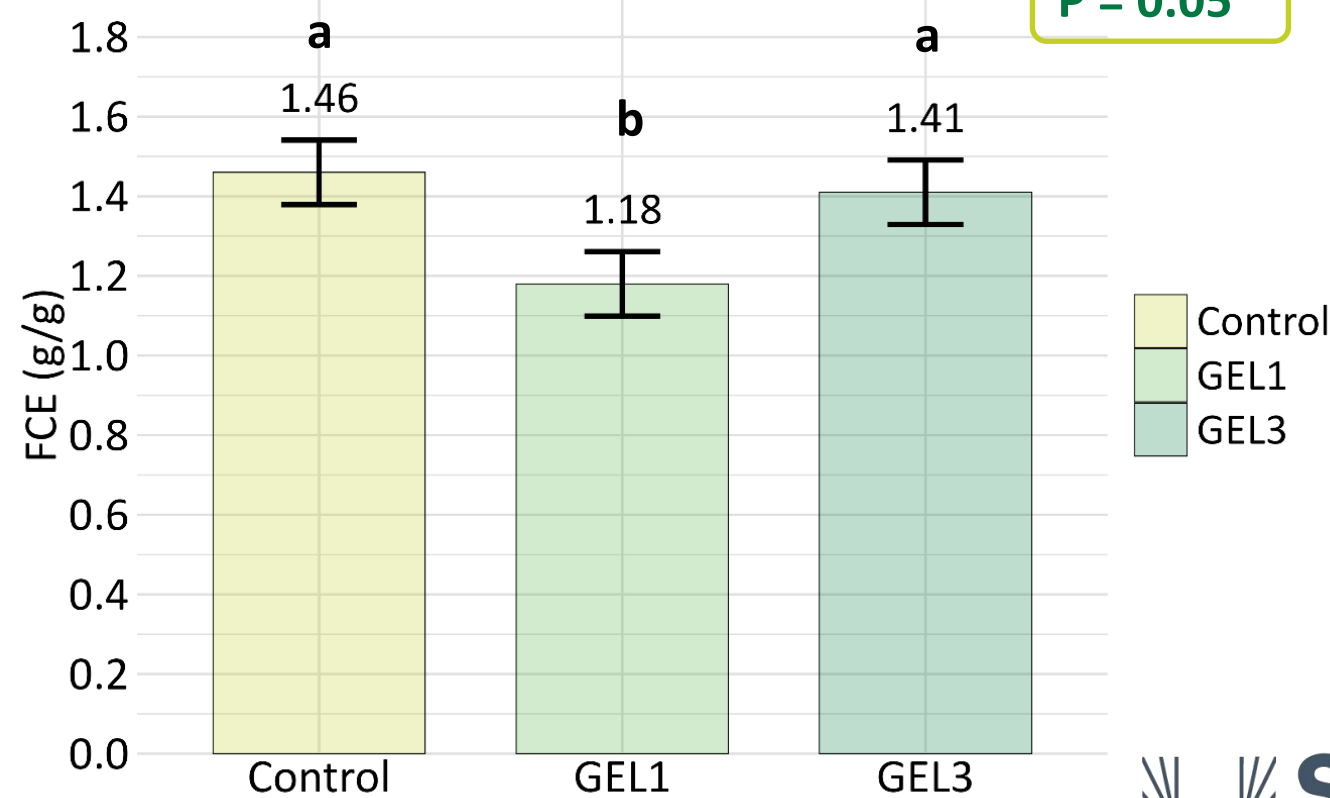
Average daily feed intake (d0-d6)

P > 0.10



Feed conversion efficiency (d0-d6)

P = 0.05



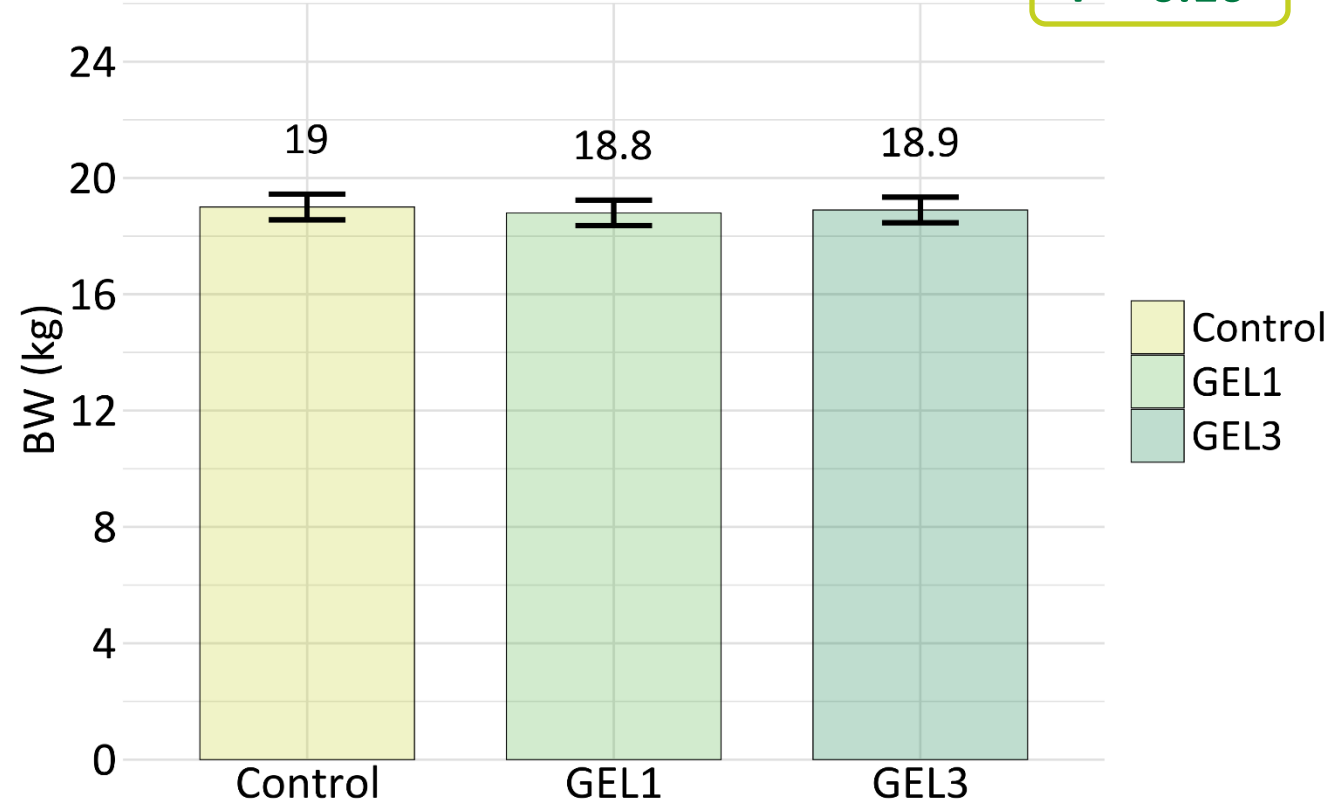
Control
1% GRI
3% GRI



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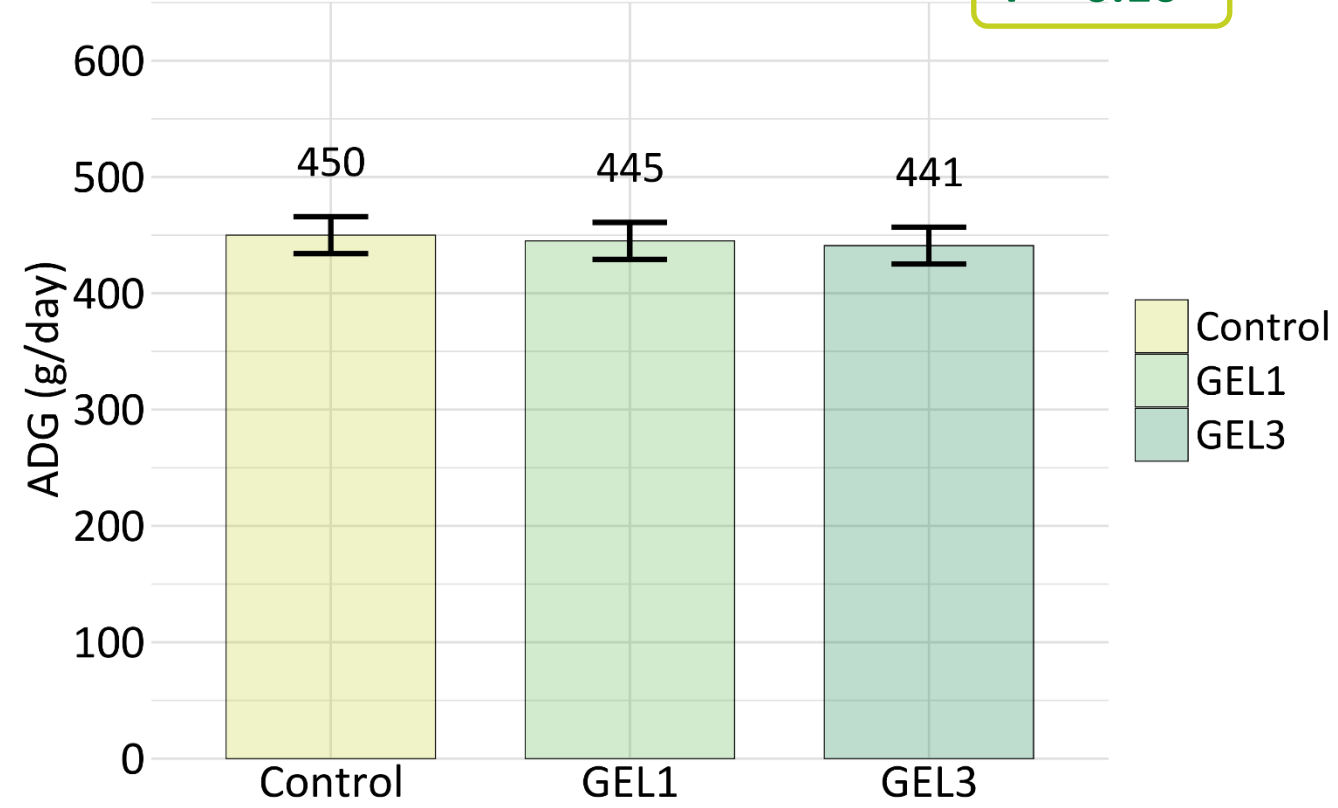
Body weight (d21)

P > 0.10



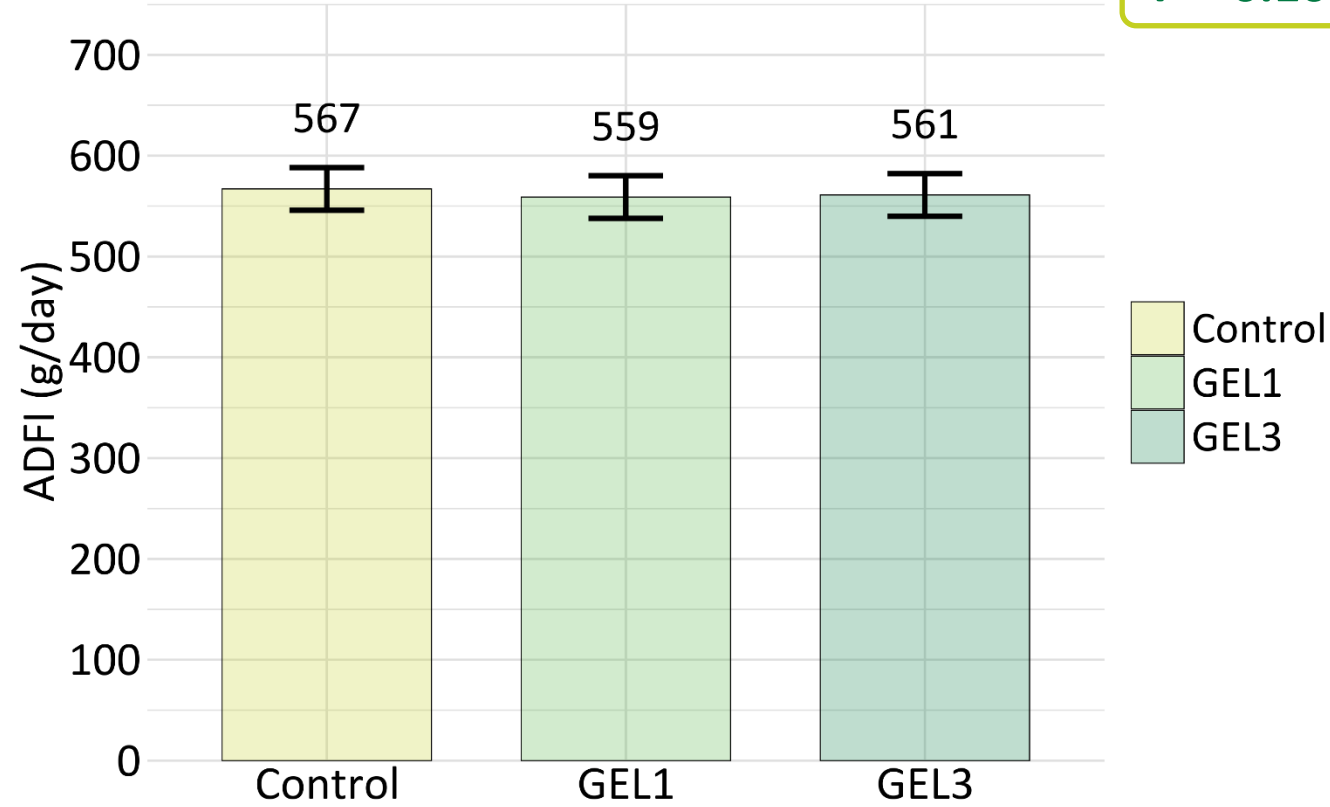
Average daily gain (d0-d21)

P > 0.10



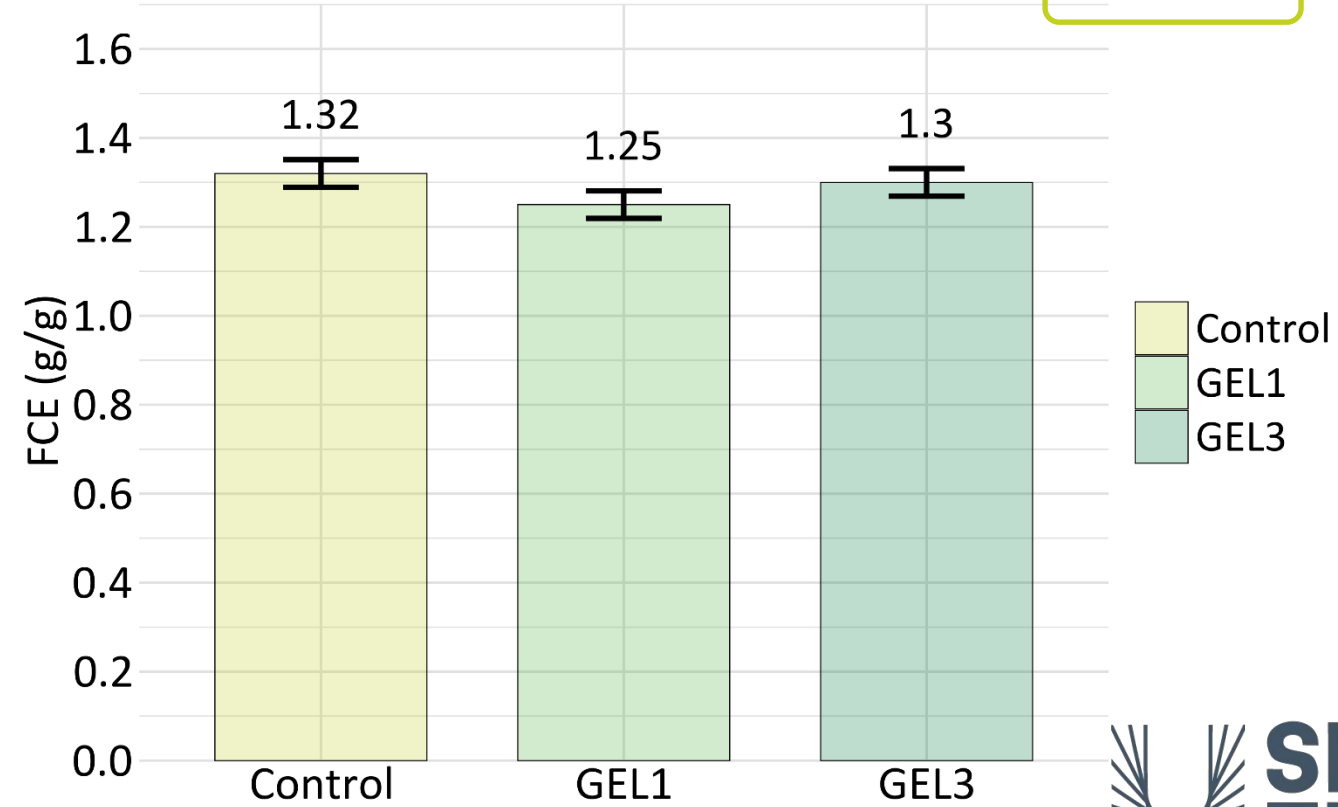
Average daily feed intake (d0-d21)

P > 0.10



Feed conversion efficiency (d0-d21)

P > 0.10

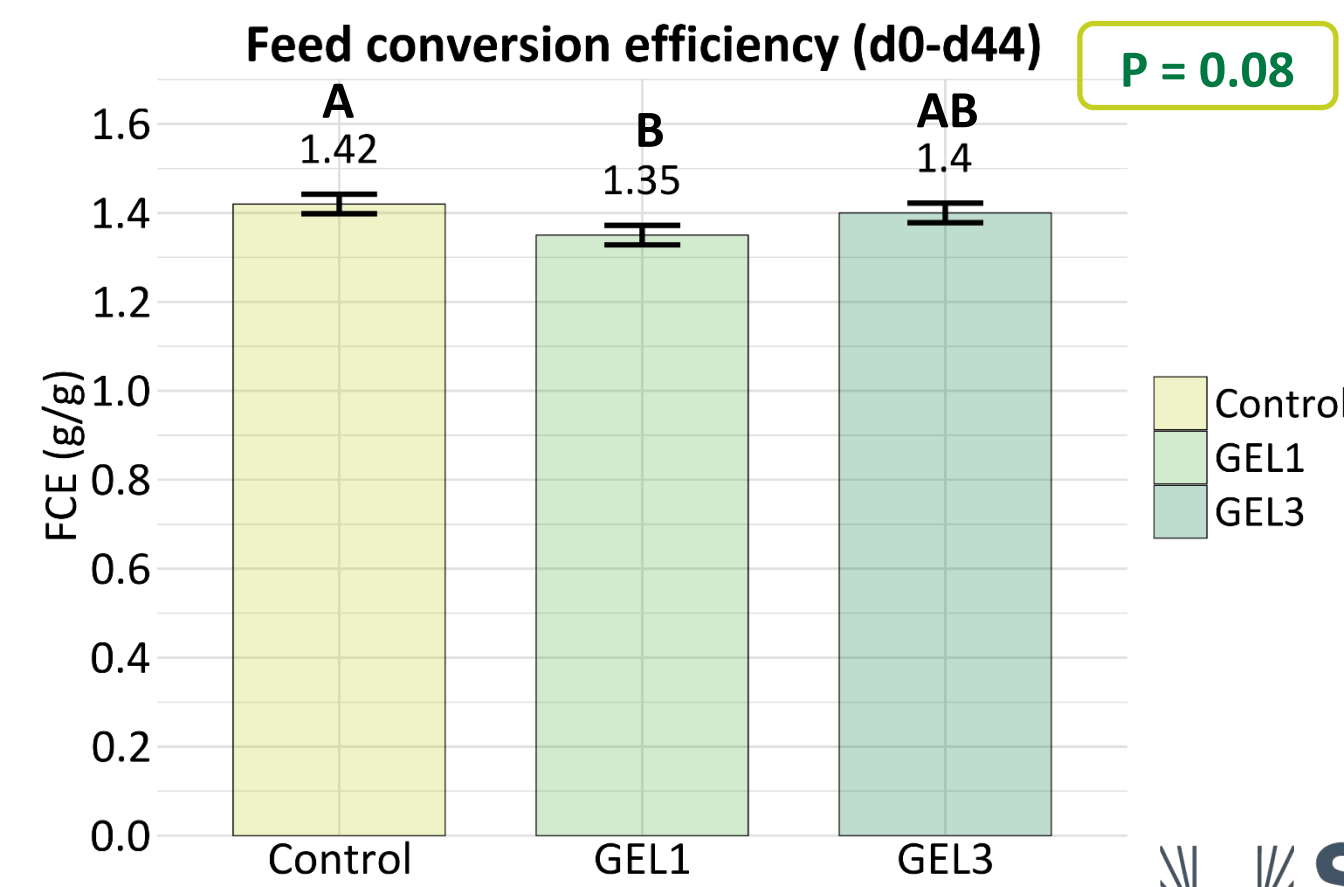
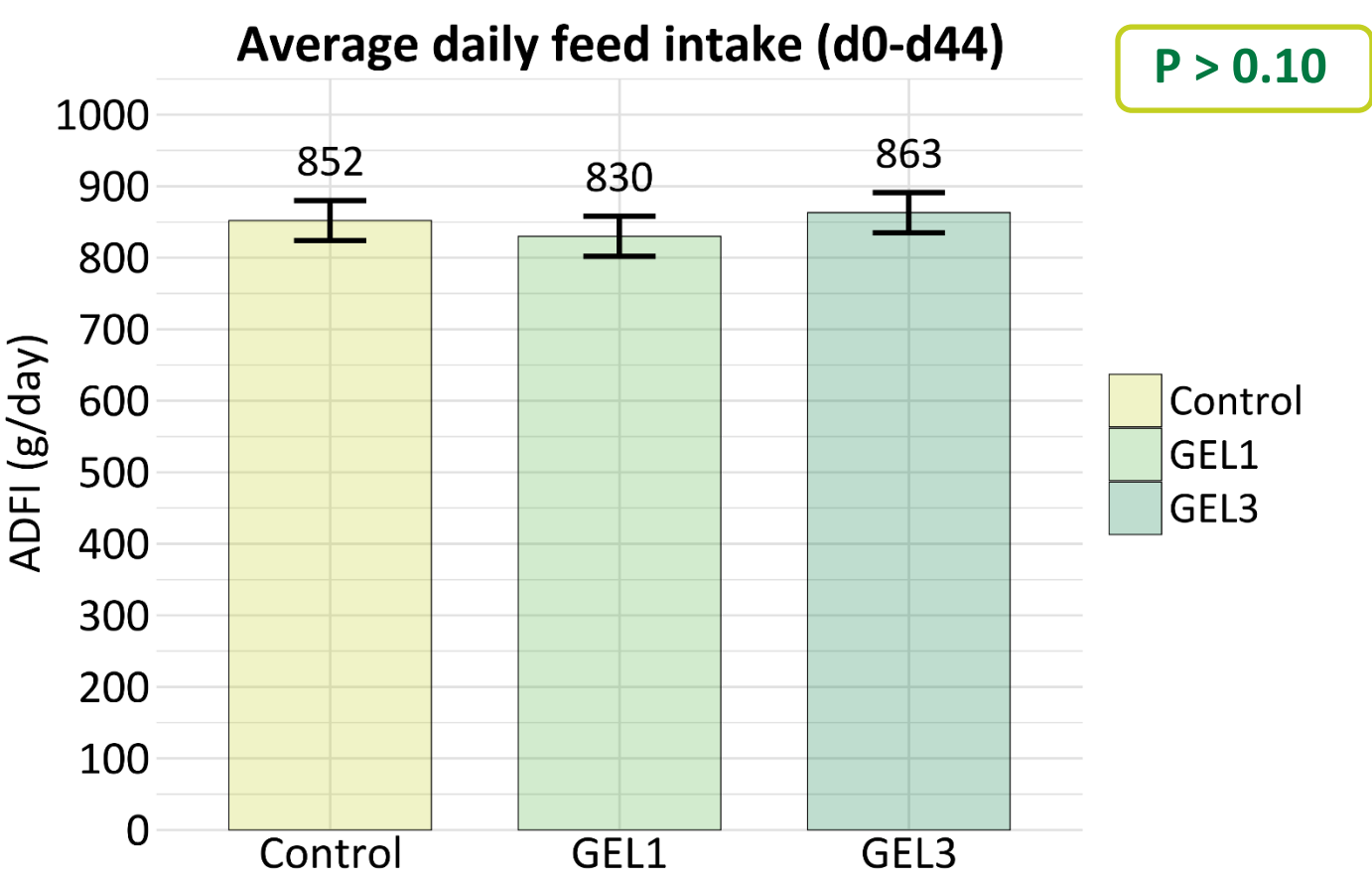
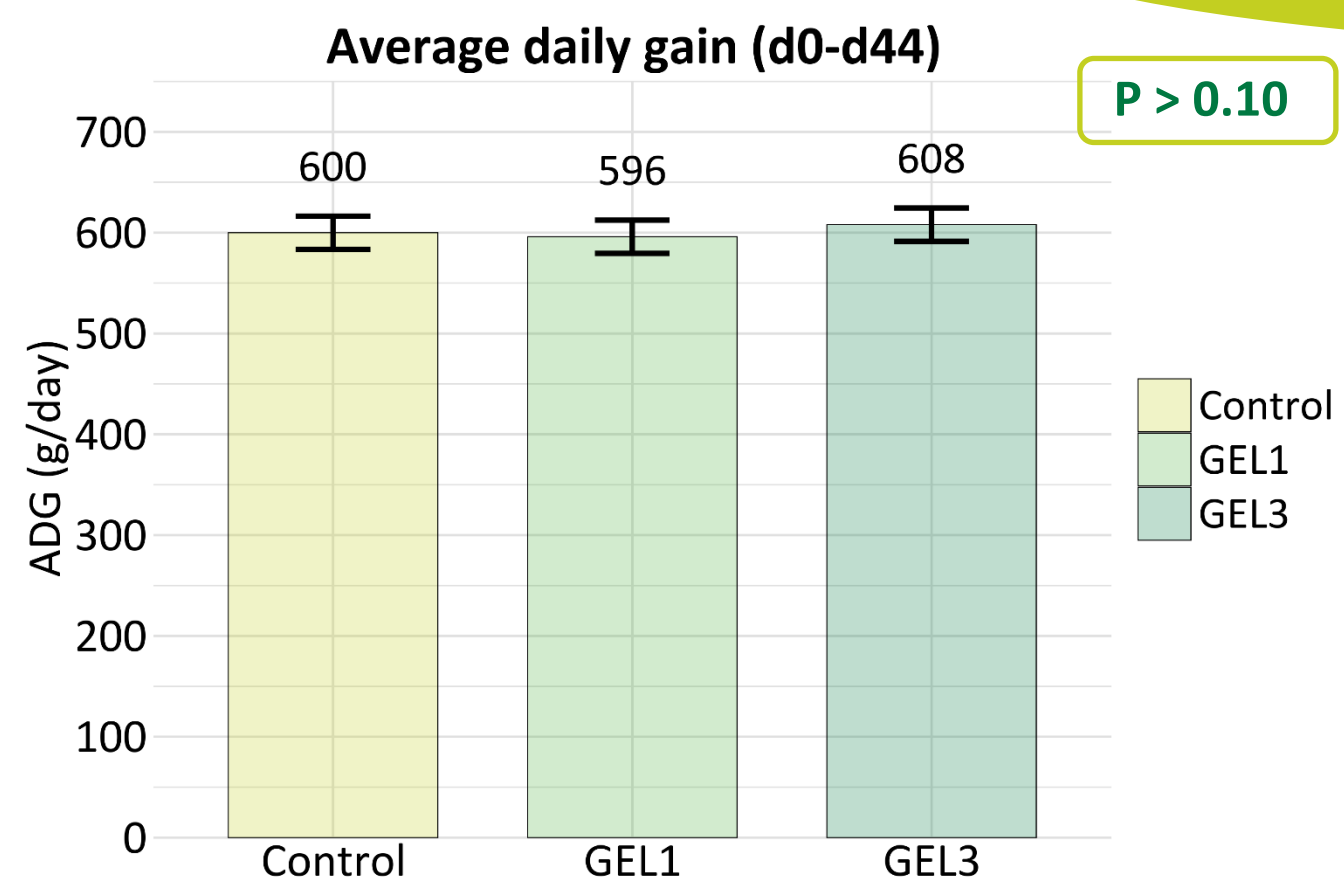
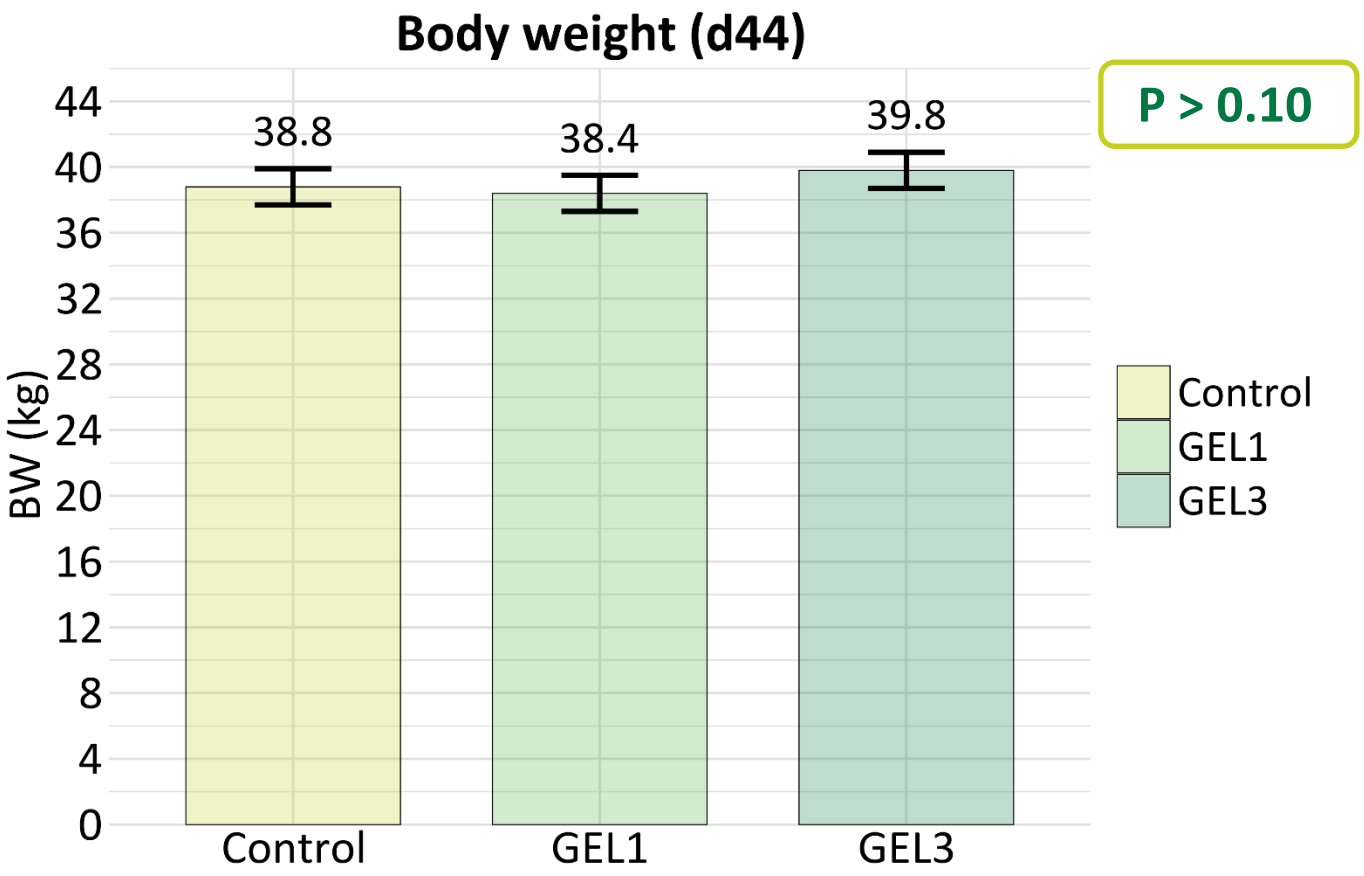


Growth results – d0-d21

- Control
- 1% GRI
- 3% GRI



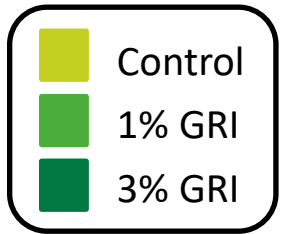
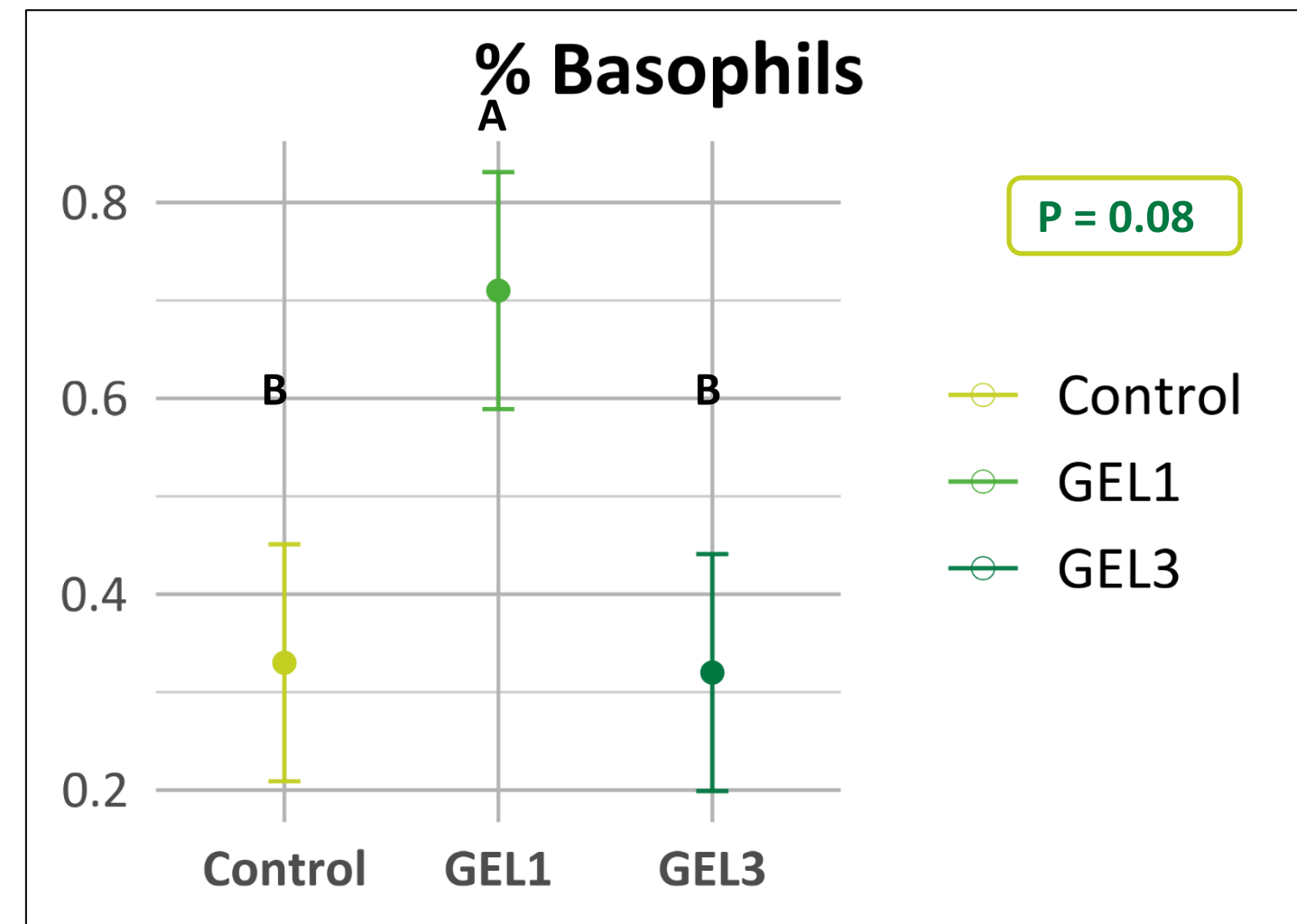
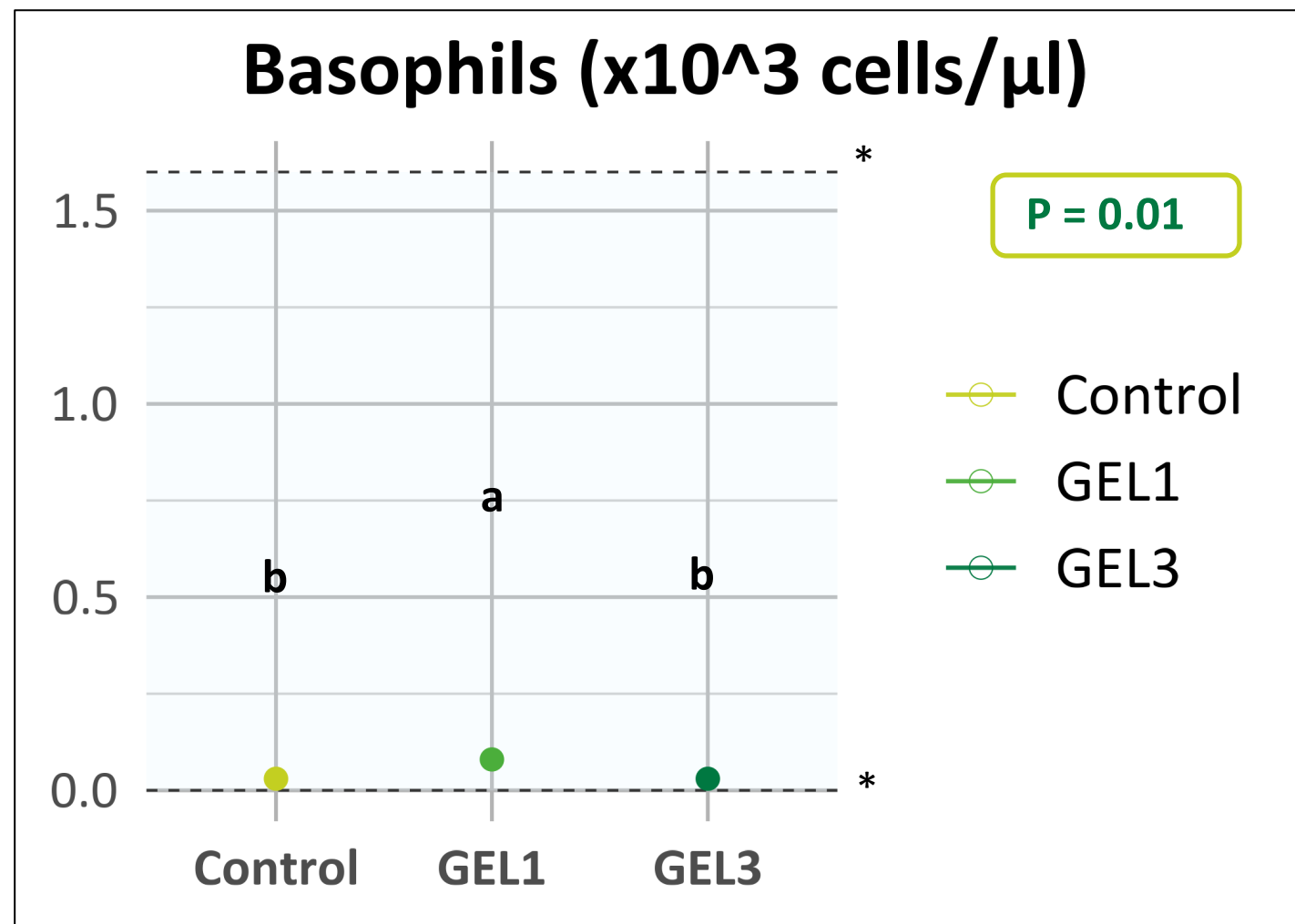
Growth results – d0-d44



■ Control
■ 1% GRI
■ 3% GRI

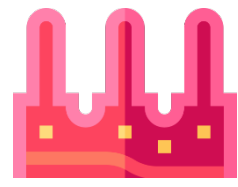


Haematology results

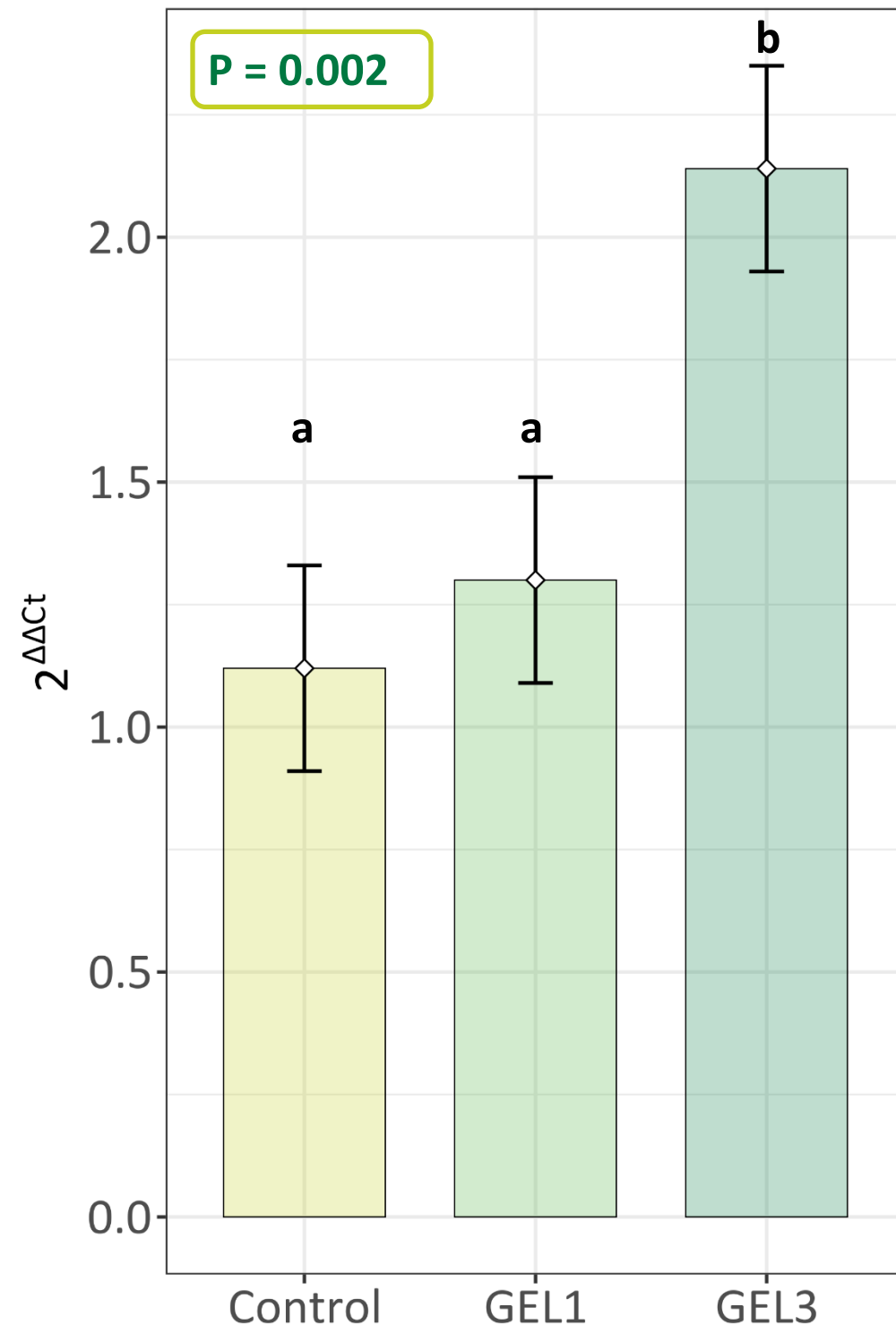


*Normal reference ranges for pigs from 0 to 6 weeks old (Iowa State University, 2011)

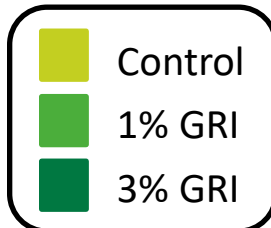
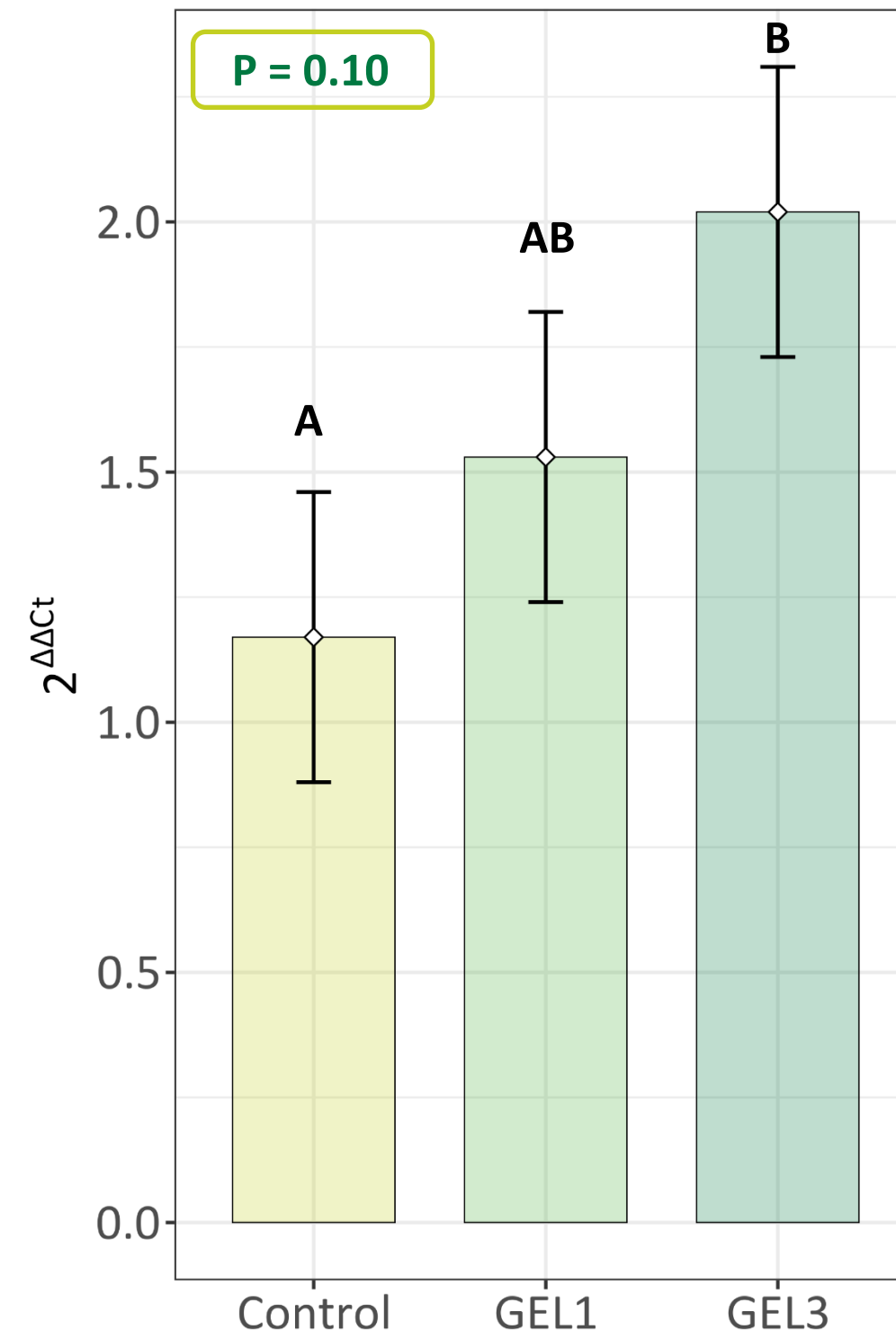
mRNA data



Claudin4 ($2^{\Delta\Delta Ct}$) — Duodenum

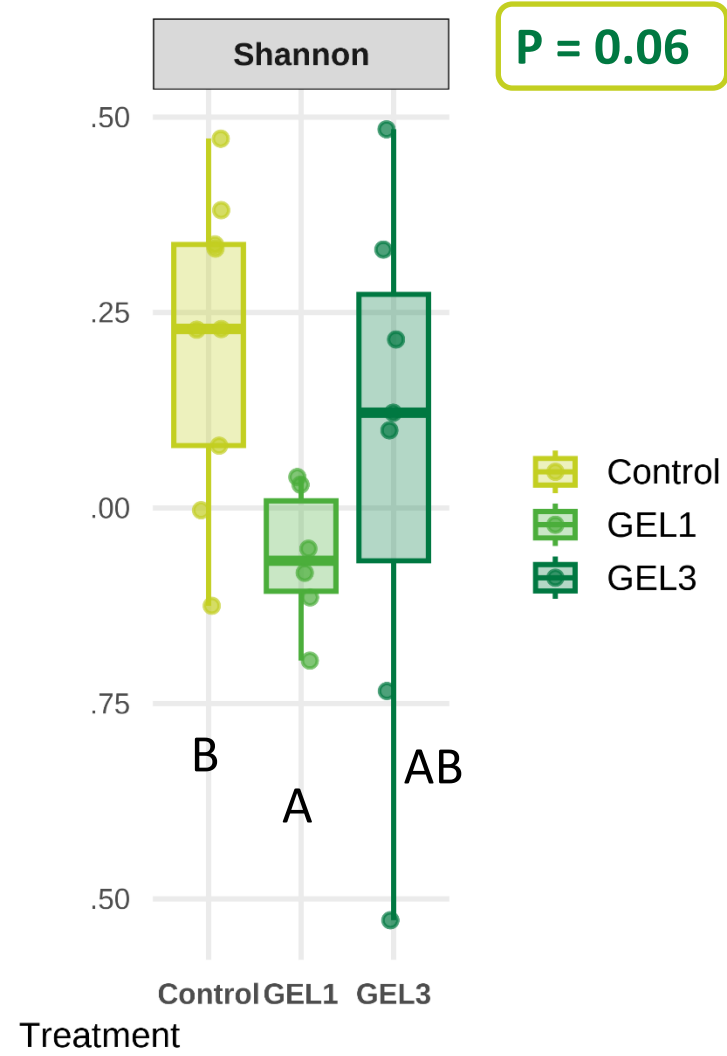


Claudin4 ($2^{\Delta\Delta Ct}$) — Jejunum

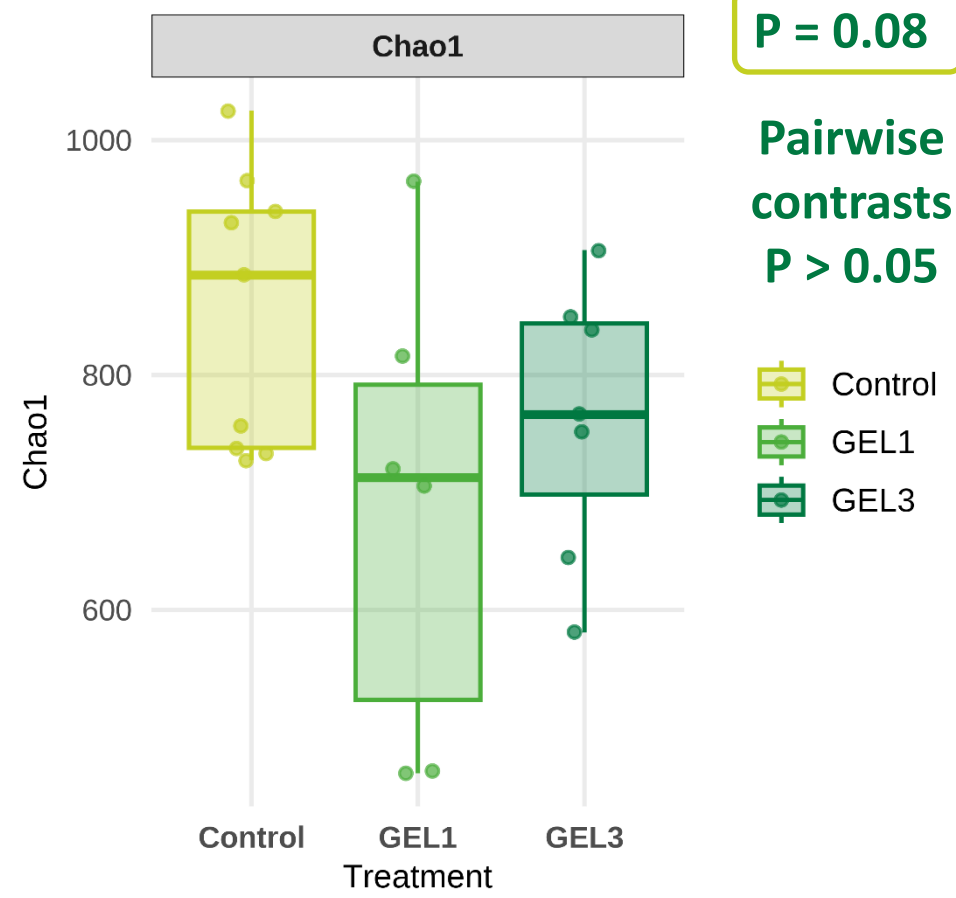


Colonic microbiota results

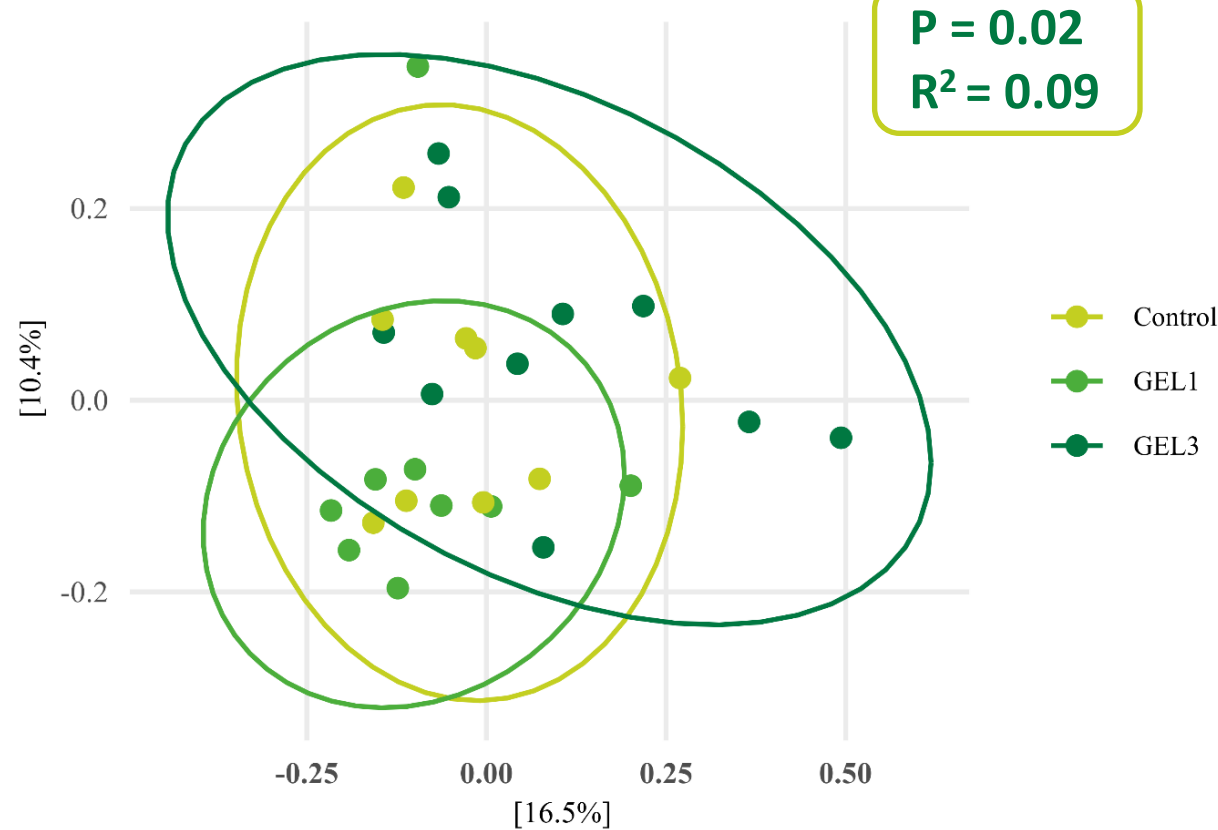
Alpha diversity – Colon



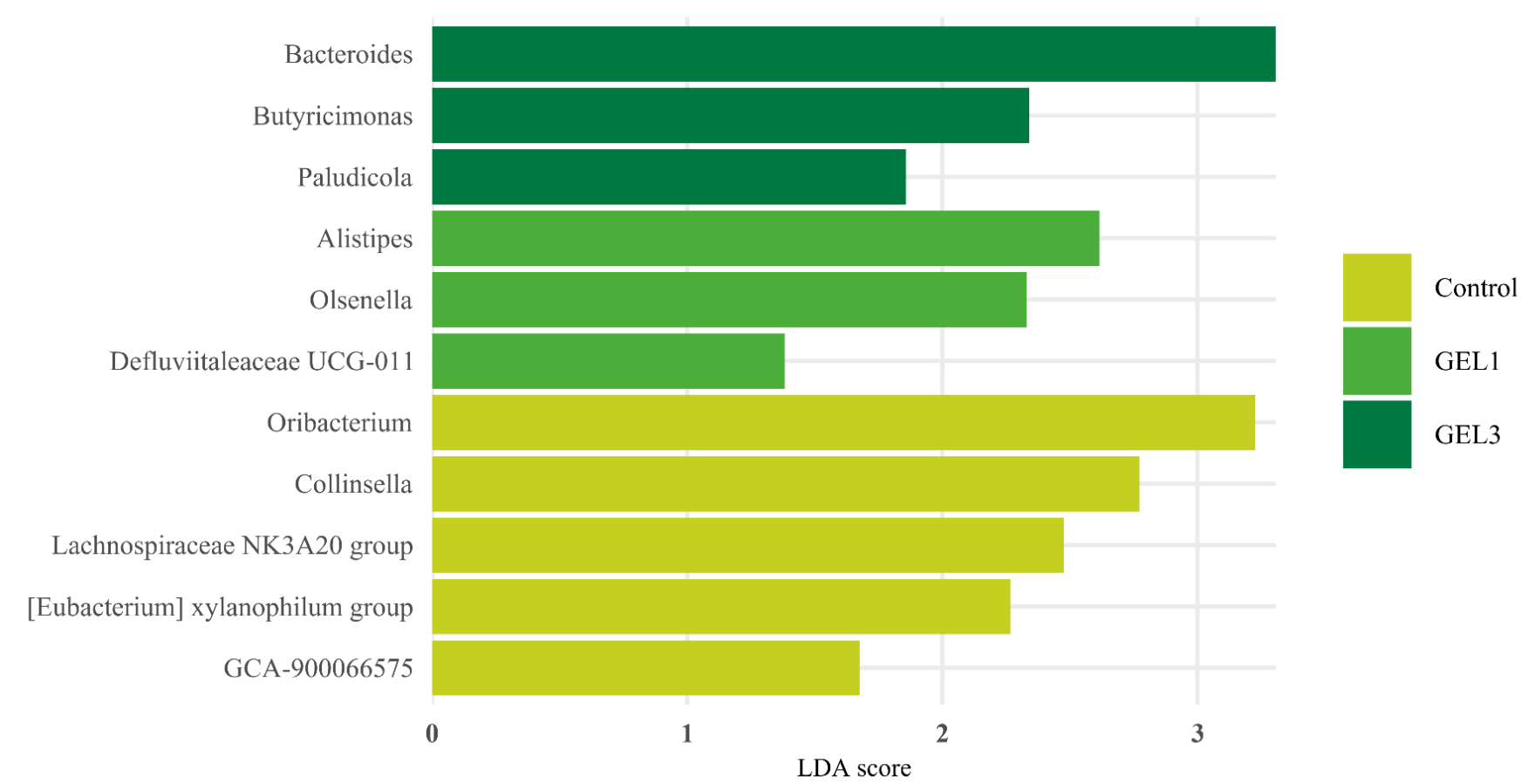
Alpha diversity – Colon



PCoA – Bray Curtis - Colon



LEfSe – Colon (Genus)

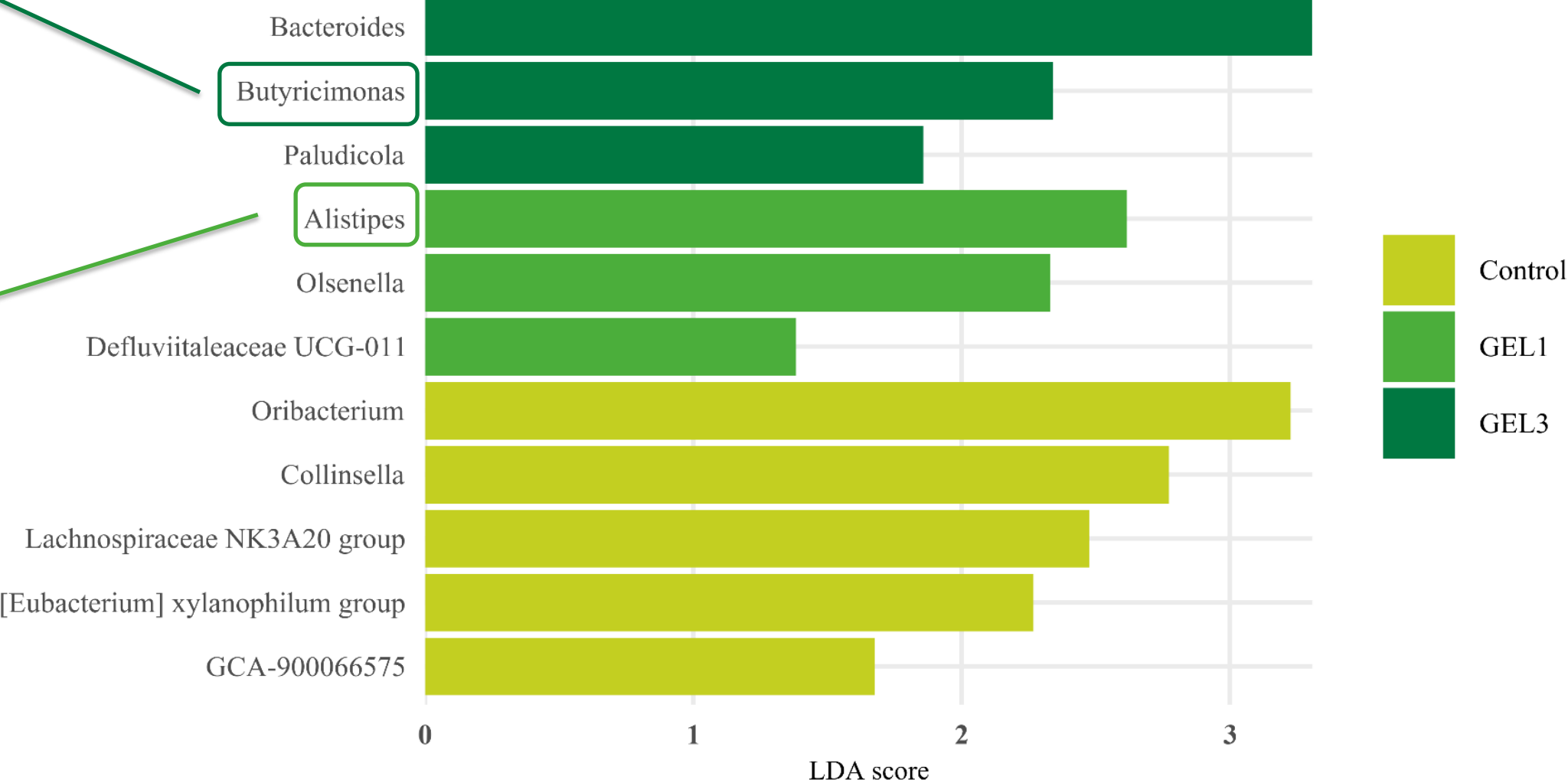


Colonic microbiota results

Indicated an active butyrate-producing environment capable of supporting epithelial energy requirements

Produces Carbohydrate-Active EnZymes (CAZymes), enhanced degradation of complex dietary polysaccharides

LefSe – Colon (Genus)



Conclusions

- 🌿 Dietary inclusion of GRI post-weaning (PW; 1-3%) – minimal effects on growth, haematology & intestinal function → Feasibility as an alternative feed ingredient
- 🌿 Feed efficiency, selected immune & intestinal barrier markers PW warrant further investigation
- 🌿 These results, combined with sustainability advantages of GRI, support its further exploration as a novel feed ingredient PW

Acknowledgments



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Thank You Questions?

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