The role of BCS evolution across milking period on milk production traits in low-input dairy goats

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OBJECTIVE: To assess the role of body condition score (BCS) and its evolution patterns across the milking period on milk traits in low-input dairy goat farms

MATERIALS AND METHODS

- **7** low-input farms & **3** different breeds (Skopelos, Eghoria Greek & Damascus)
- **4,890** records from **644** dairy goats (298 of them for 2 successive lactations)
  - Monthly measurements of BCS, milk yields & gross chemical milk composition during a 5-month milking period
  - Total milk yield (MY), fat yield (FY) & protein yield (PY) calculated according to ICAR recommendations
- Two-step cluster analysis → establish BCS patterns
  - Resulting clusters grouped in major clusters based on **BCS at weaning** & its changes thereafter
- General linear models → relationship of BCS clustering with the studied milk traits adjusted for breed effect
- Kruskal-Wallis test → comparisons of milk traits among clusters

RESULTS

- 4 major clusters were identified
- BCS clustering was associated (*P*<0.05) with ln-transformed MY (R^2=0.108), FY (R^2=0.094) & PY (R^2=0.137)

Cluster	*n*	BCS evolution pattern
C1	117	low BCS (*ca*. 2.0) across milking period
C2	351	increasing from a low BCS (*ca*. 2.0)
C3	198	medium BCS (*ca*. 2.5) across milking period
C4	276	increasing from a medium BCS (*ca*. 2.5)

Total Milk Yield (kg)

Total Fat Yield (kg)

Total Protein Yield (kg)
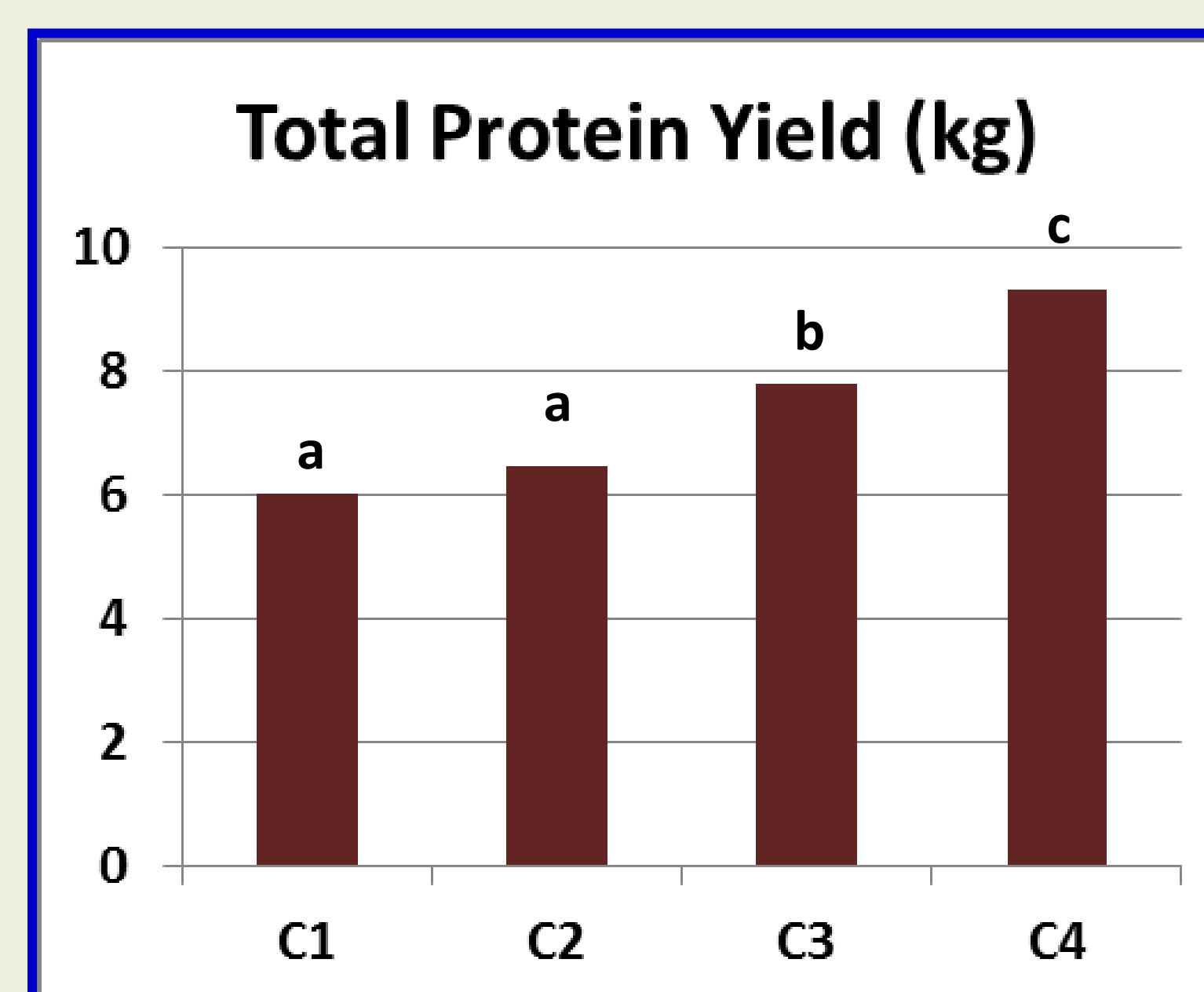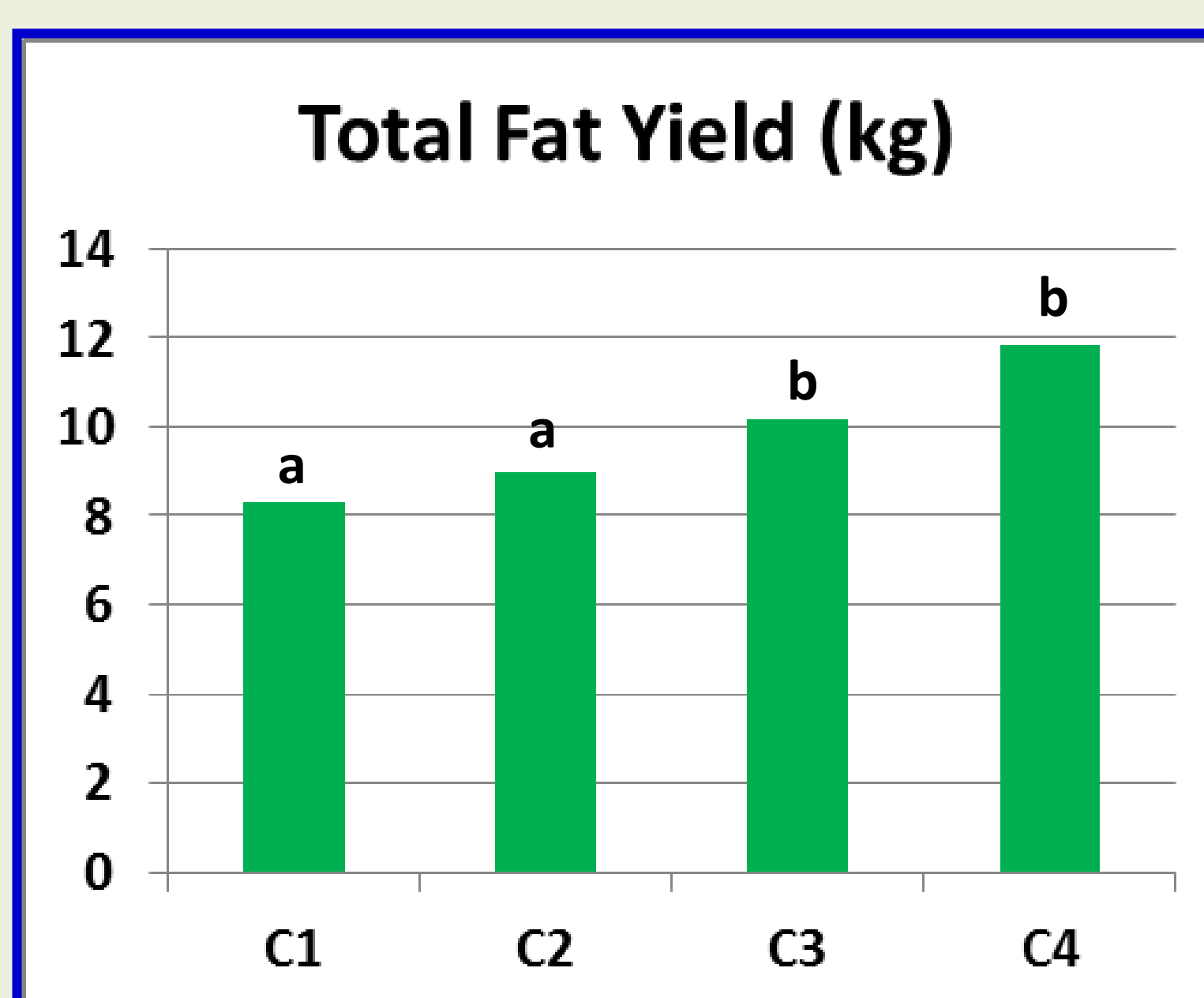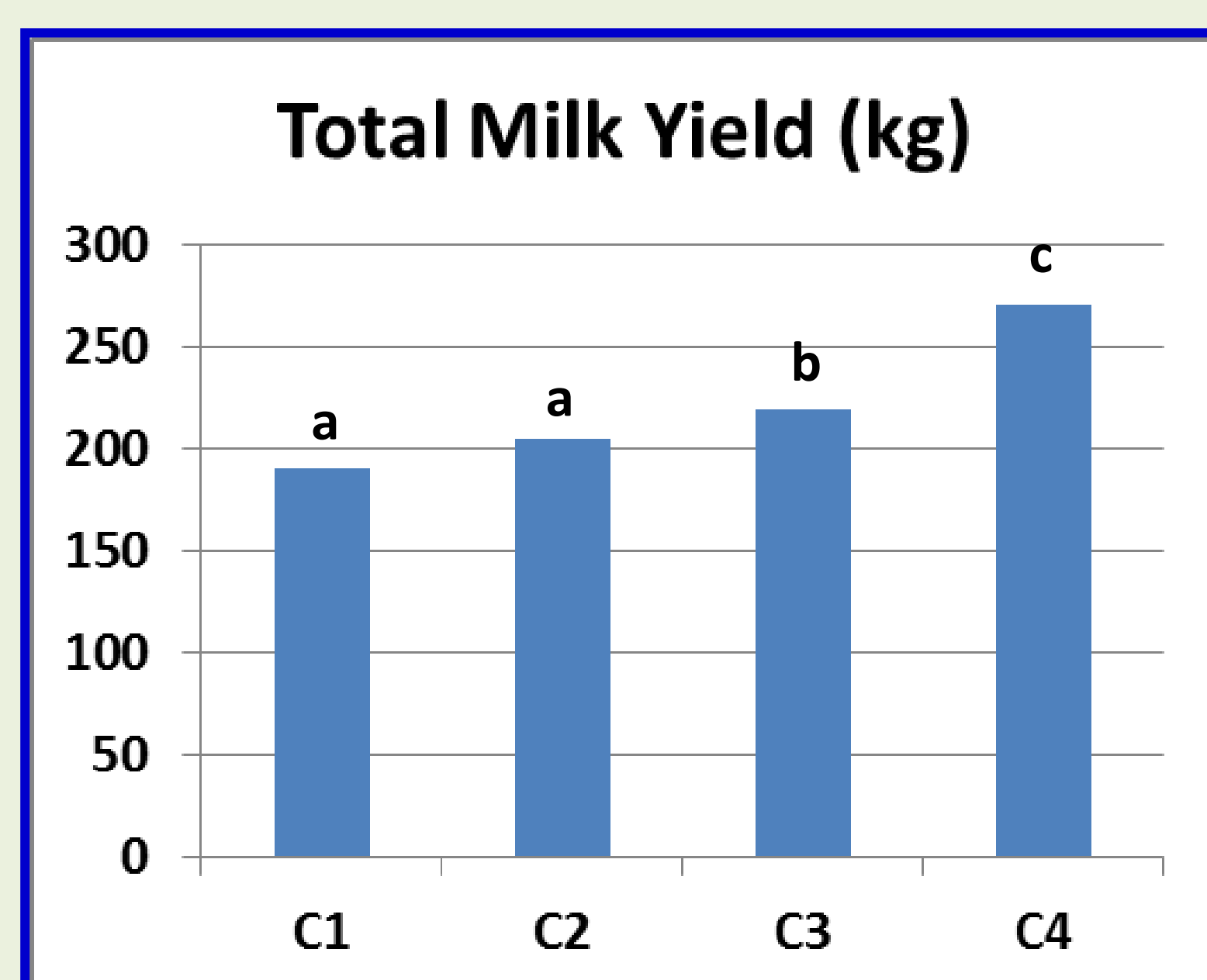
[a-c] Bars with different letters differ significantly (*P*<0.05)

CONCLUSION

✓ Goats with BCS of 2.5 at weaning and in positive or even neutral energy balance thereafter, significantly outperformed those with BCS of 2.0 at weaning regarding total MY, FY & PY

✓ Management should focus on limiting BCS loss pre-weaning

EAAP 69th Annual Meeting, August 27th - 31st, Dubrovnik 2018