

Factors influencing the composition of alpaca milk in the Peruvian Andes

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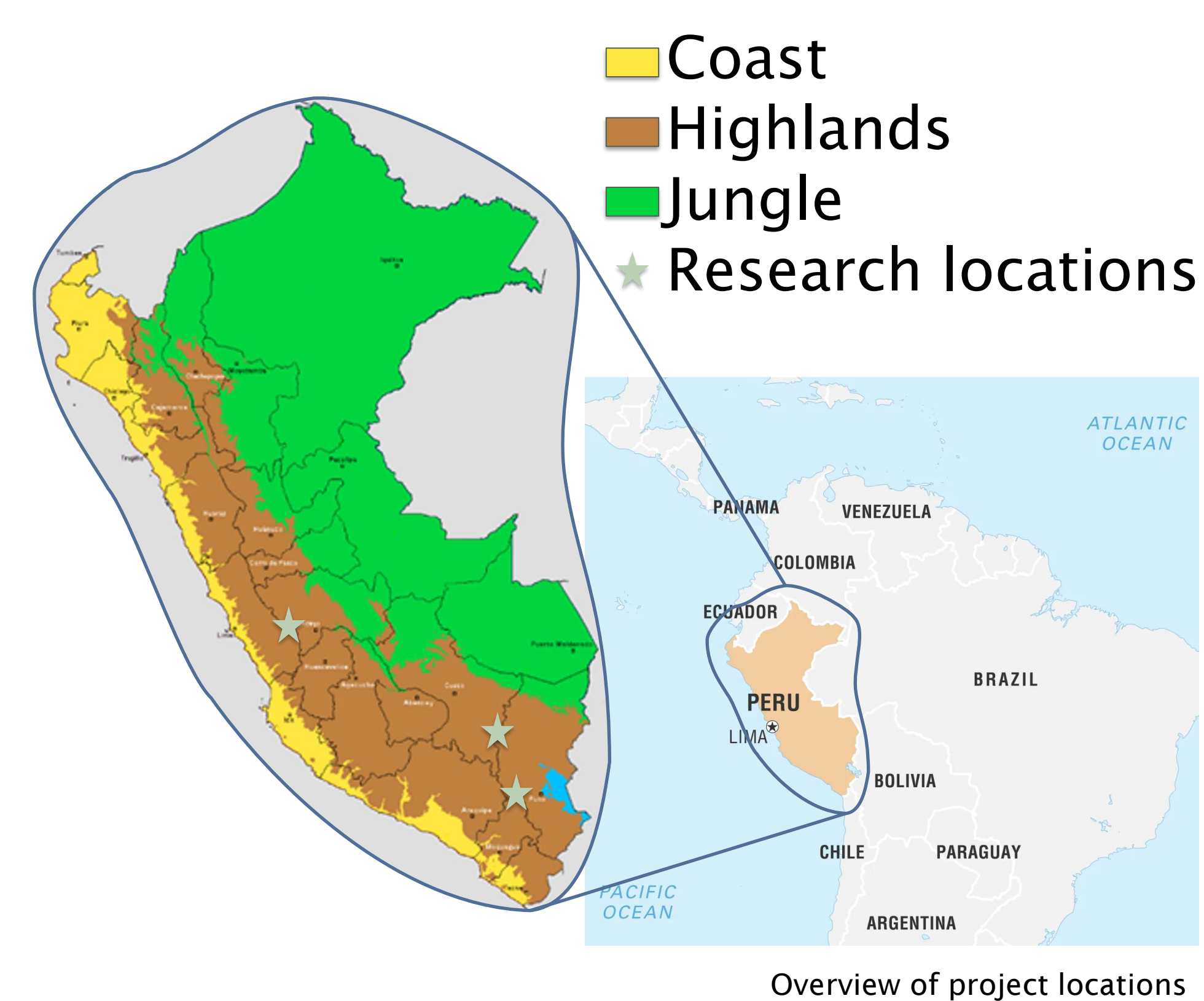
Project relevance

- Peru hosts 87% of global alpaca population.
- Animals are kept by smallholder farmers in the Andes.
- Major challenge: High mortality (up to 70%) of cria (baby alpaca), likely caused by poor colostrum quality.
- Research gap: Milk composition & health management under natural husbandry conditions.

Objectives

- To assess the chemical composition of alpaca milk at different parity and lactation stages in three different regions.
- To describe local alpaca production systems and to understand cria management practices.

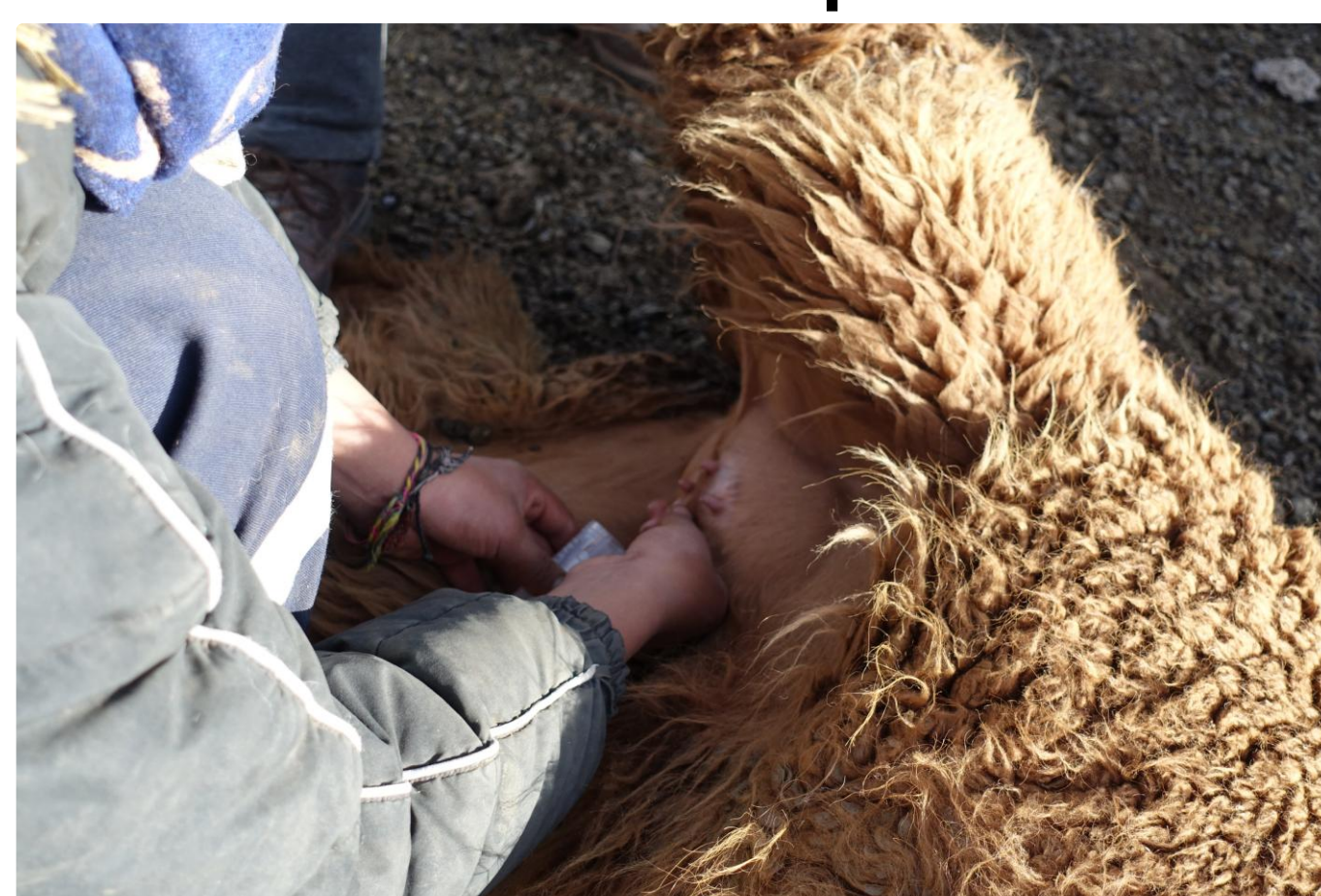
Location



Methodology

Milk sampling

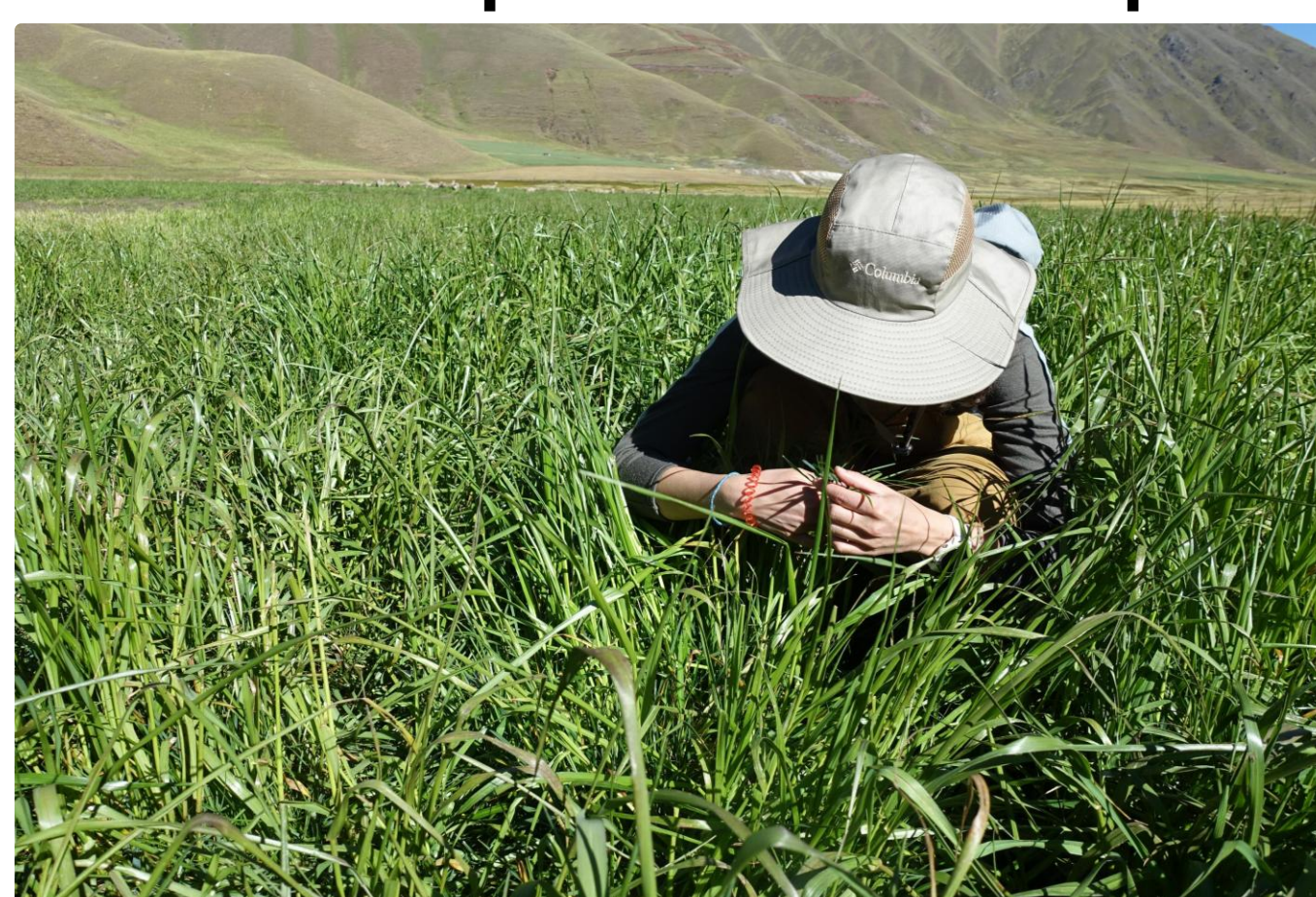
- 3 regions
- 3 lactation stages
- n = 158 samples



Milk sample collection

Pasture sampling

- 3 regions
- 3 vegetation stages
- n = 9 pooled samples



Fodder sample collection on a cultivated pasture

Farmers interviews

- 3 regions
- n = 11 interviews



Conducting farmer interviews with translator

Laboratory analysis

- MilkoScan



Milk analysis with the MilkoScan

Main results

Farming system

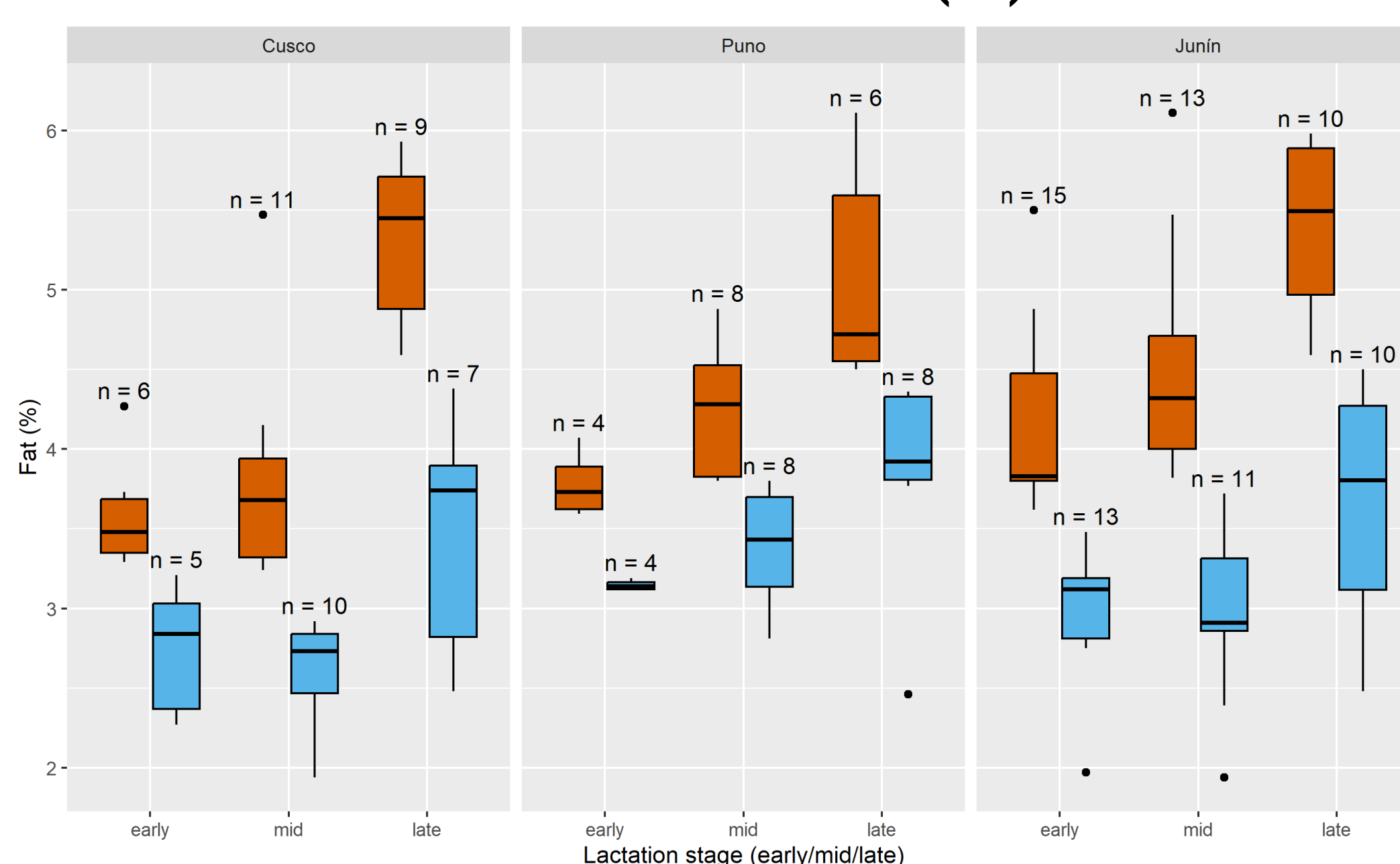
Traditional family-based systems relying on native pastures. Births peak between January and March. Farmers report seasonal feed shortages, harsh climate, and limited veterinary support.

Fodder quality

NDF increased, while crude protein declined from March to end of September. Forage quality was slightly better in Junín than Cusco and Puno.

Milk composition across regions, parity and lactation stages

Fat content (%)

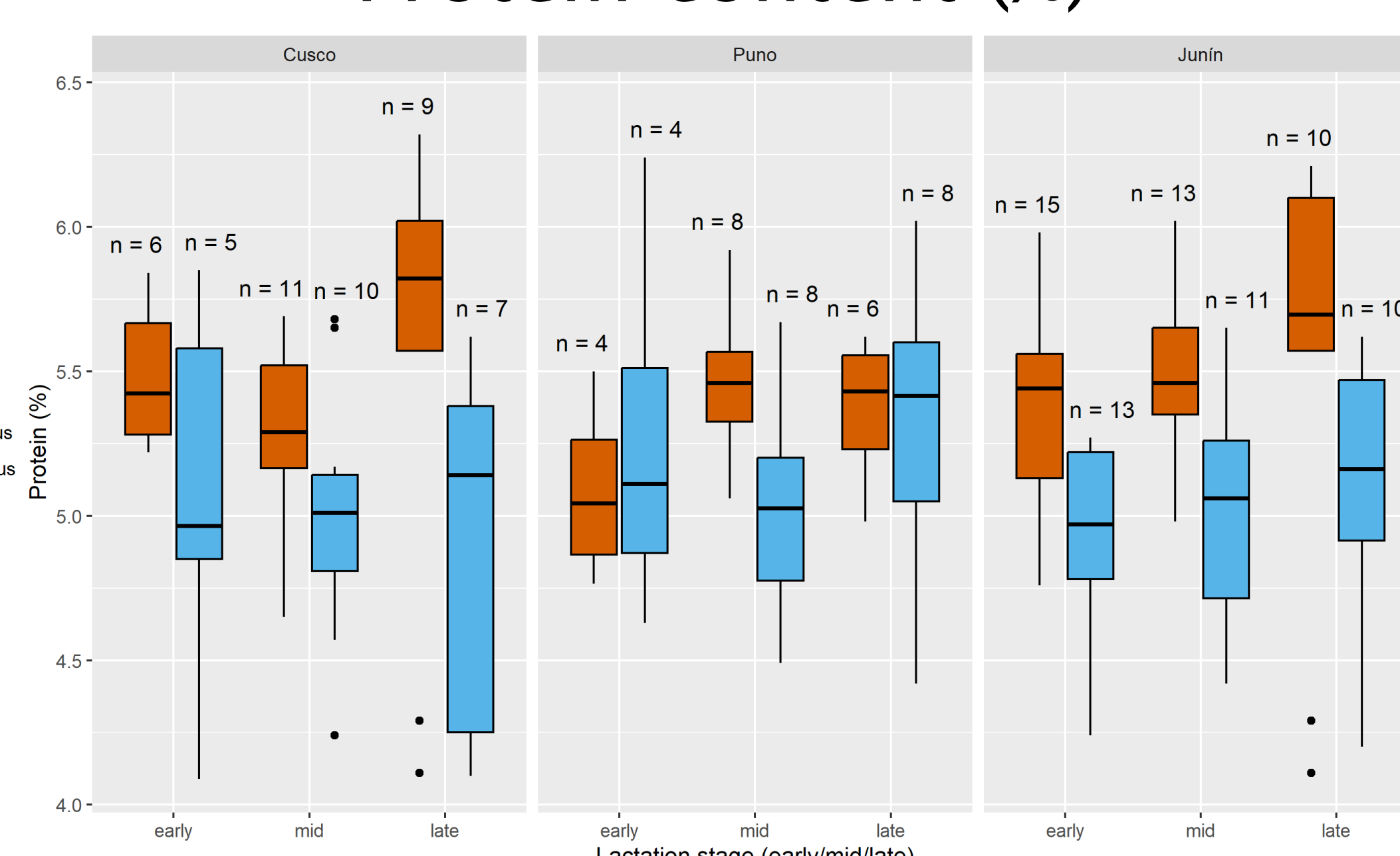


Distribution of milk fat content (%) according to lactation stage and parity in each study region. The number of samples (n) per group is indicated above each box.

Fat content:

- increased from early to late lactation.
- higher for multiparous females.
- lower in Cusco than in Puno and Junín.

Protein content (%)



Distribution of milk protein content (%) according to lactation stage and parity in each study region. The number of samples (n) per group is indicated above each box.

Protein content:

- higher in multiparous females.
- smaller differences across lactation stages and regions.

Conclusion

- Milk composition was influenced mainly by parity and lactation stage, not region.
- Feed and milk quality decreases from March to September, which may affect cria survival.
- Improved feeding of the dam and newborn protection could strengthen herd productivity.

