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Exploring the role of traditional management practices to cope with climate change in mountain areas

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INTRODUCTION

Livestock grazing systems constitute a traditional activity in mountain areas. They are adapted to vegetation growth cycles in meadows, forests and grasslands, and deliver **ecosystem services** such as open landscapes, wildfires prevention, biodiversity maintenance and quality products. However, **climate change poses a challenge on mountain grazing systems** by impacting on its natural resource base.

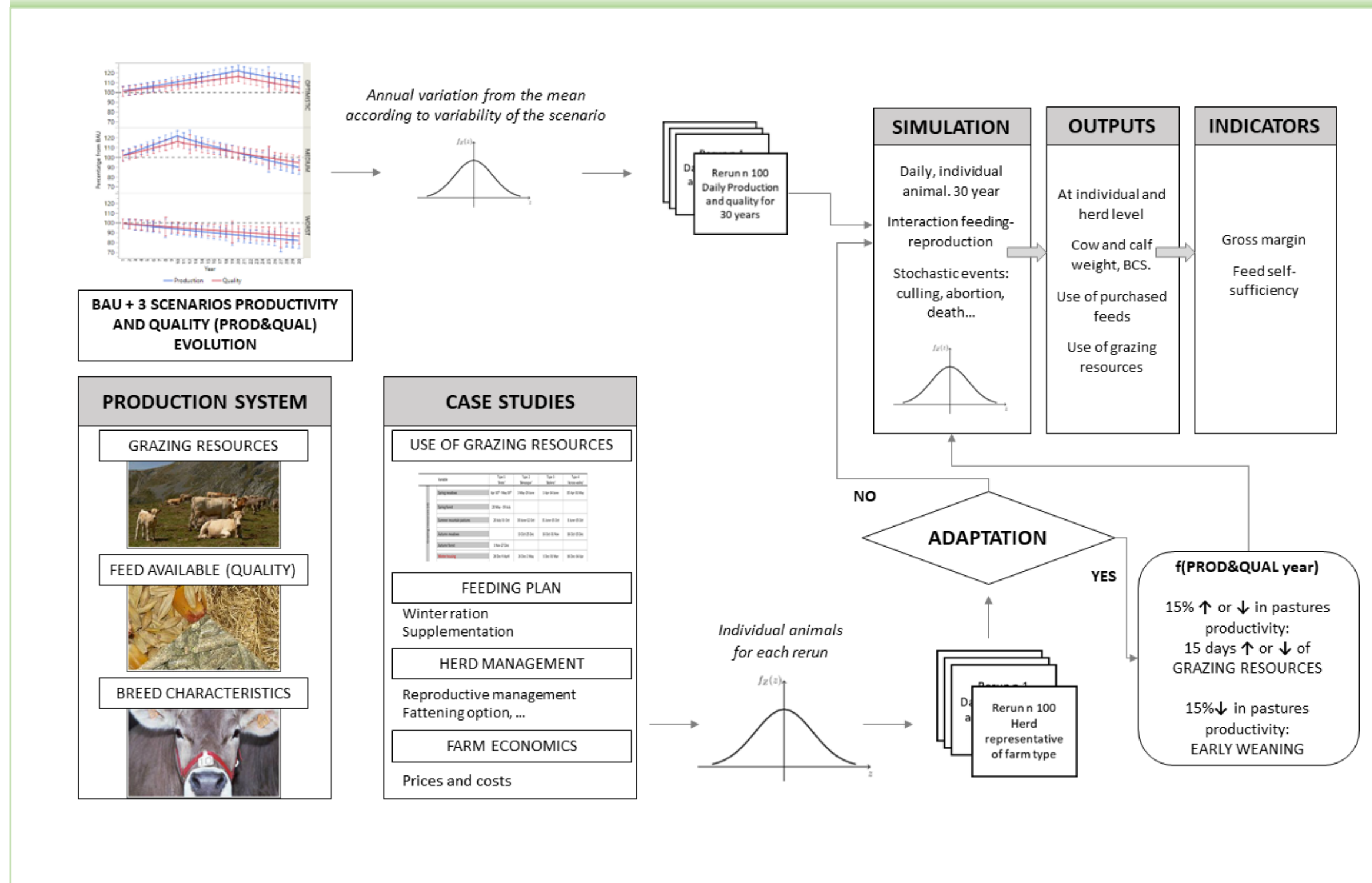


OBJECTIVES

To evaluate:

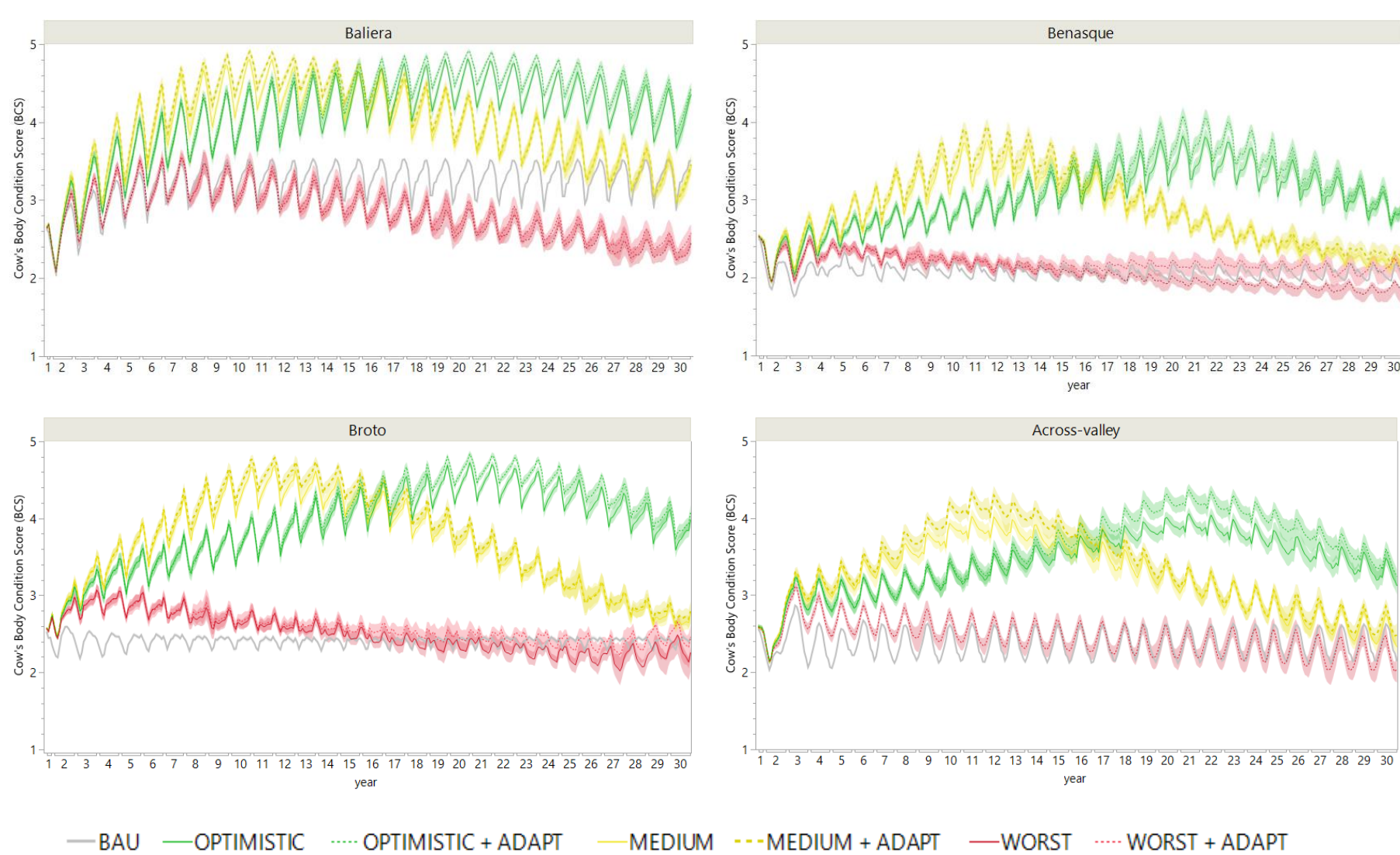
- the **potential impact of three hypothetical climate change** scenarios of pastures quality and productivity compared with business as usual (BAU) and,
- the **role of adaptation strategies** (modifying grazing length and early weaning) on the performance of four beef farming systems in the Central Spanish Pyrenees.

METHODOLOGY

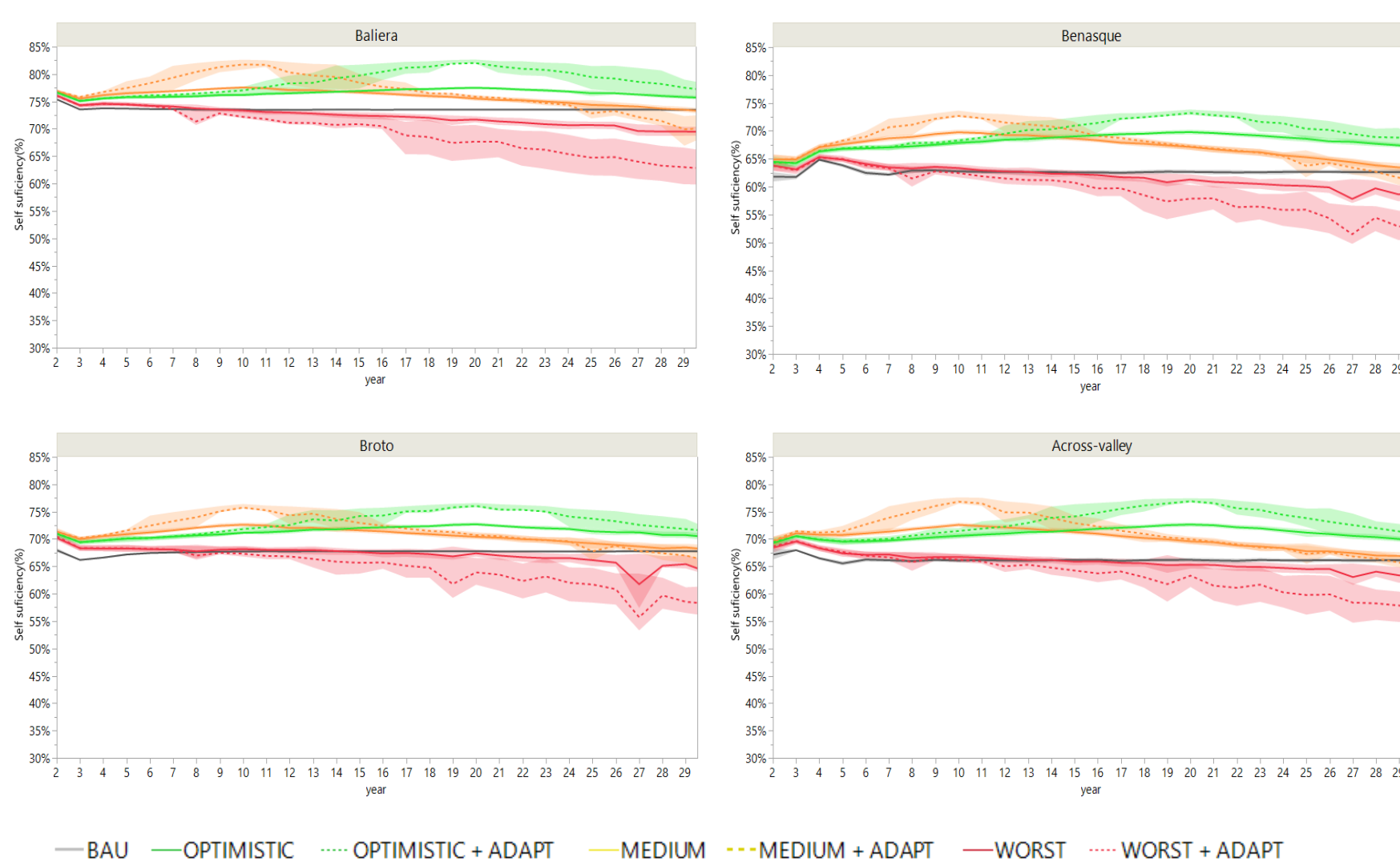


RESULTS

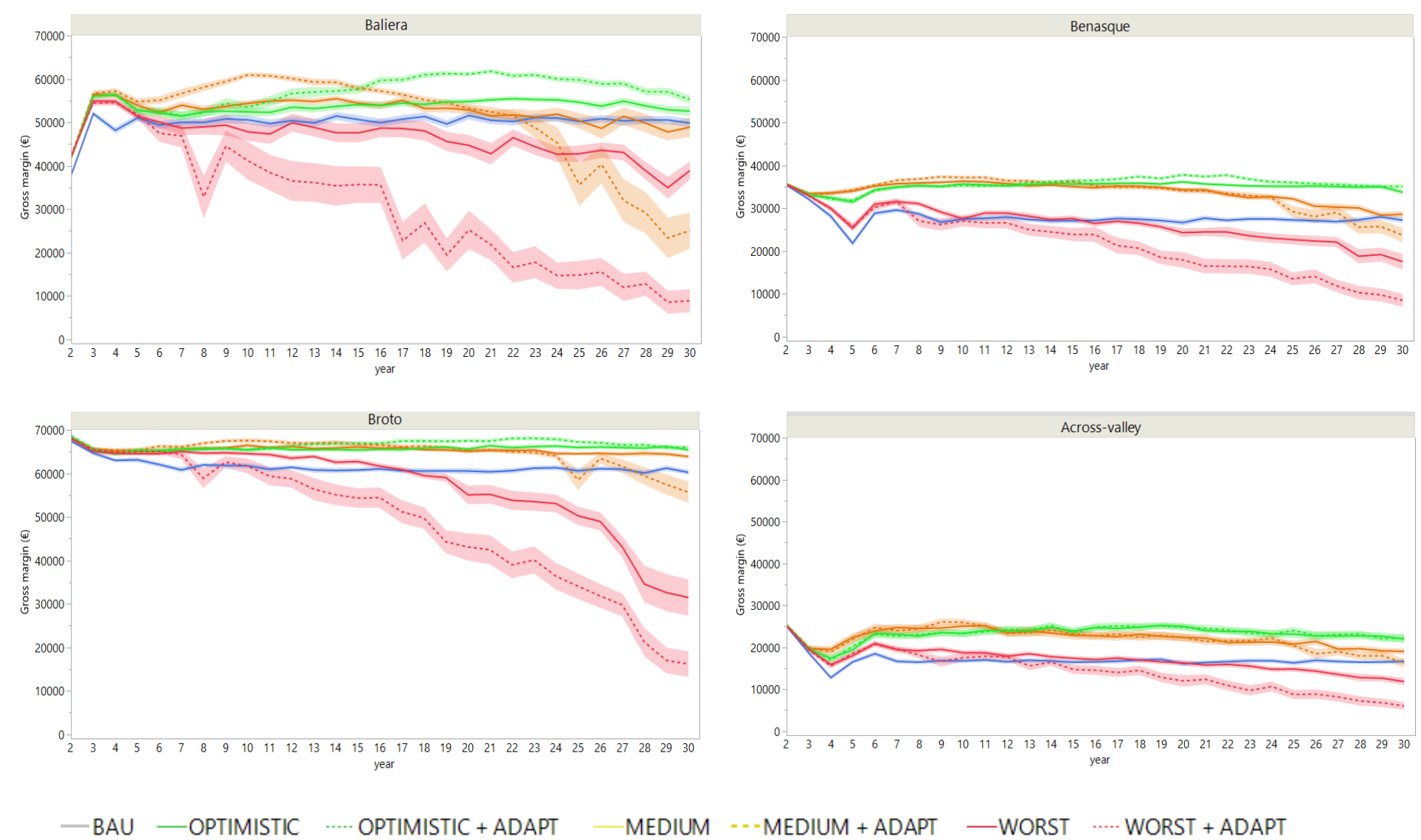
Cow body condition score (BCS) increased in optimistic and medium scenarios and slightly decreased in worst scenario. **Adaptations improved or maintained BCS.**



Feed self-sufficiency increased in optimistic and medium scenarios and slightly decreased in worst scenario. **Adaptations worsened** feed self-sufficiency in worst scenario.



Gross margin increased or kept constant in optimistic and medium scenarios and decreased in worst scenario. **Adaptations worsened** gross margin in all scenarios.



CONCLUSIONS

- Optimistic scenario:** natural pasture quality and productivity increase, cow body condition score, feed self-sufficiency and gross margin improve by increasing the length of the grazing season.
- Medium scenario:** farming indicators improve in the short-term and then return to current levels in the long-term. Adaptations worsen farm feed self-sufficiency and gross margin due to the shortened length of the grazing season.
- Worst scenario:** sharp decrease in all indicators. Adaptations maintain herds nutritional state, but at lower farm feed self-sufficiency and gross margin.

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