

# Performance and oxidative status of beef cows facing short nutritional challenges during lactation



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In extensive production systems diet quantity and quality can vary widely both in the long and the short term.



How do suckler cows respond to short nutritional challenges in different stages of lactation?

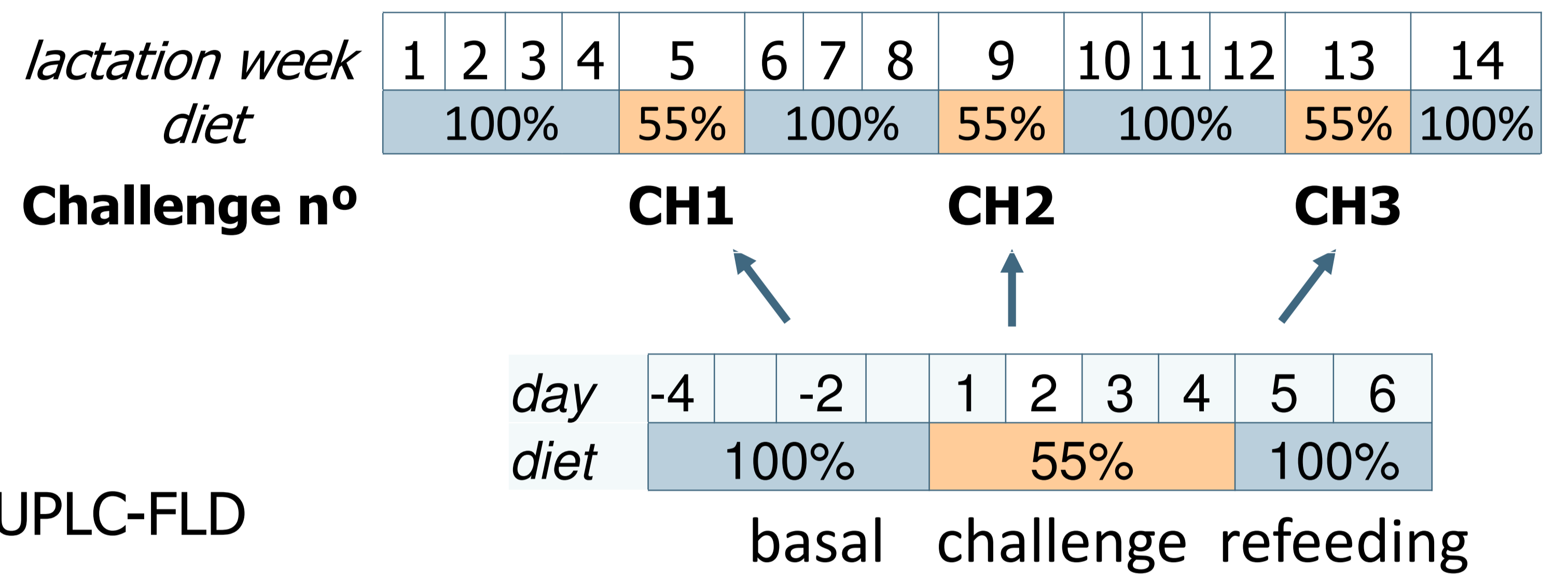
## MATERIALS & METHODS

16 adult Parida de Montaña cows:  
calving date Oct 20, calving LW 643 kg, calf birth LW 44 kg

Diet for 100% energy requirements: 110 MJ ME/d  
7.0 kg DM hay + 2.7 kg DM concentrate

### Nutritional challenges:

4-day diet restriction to 55% requirements:  
6.2 kg DM hay



### Daily measurements

- dam and calf live weight (LW)
- dam milk yield (MY): weigh-suckle-weigh technique
- dam oxidative status - plasma malondialdehyde (MDA): UPLC-FLD

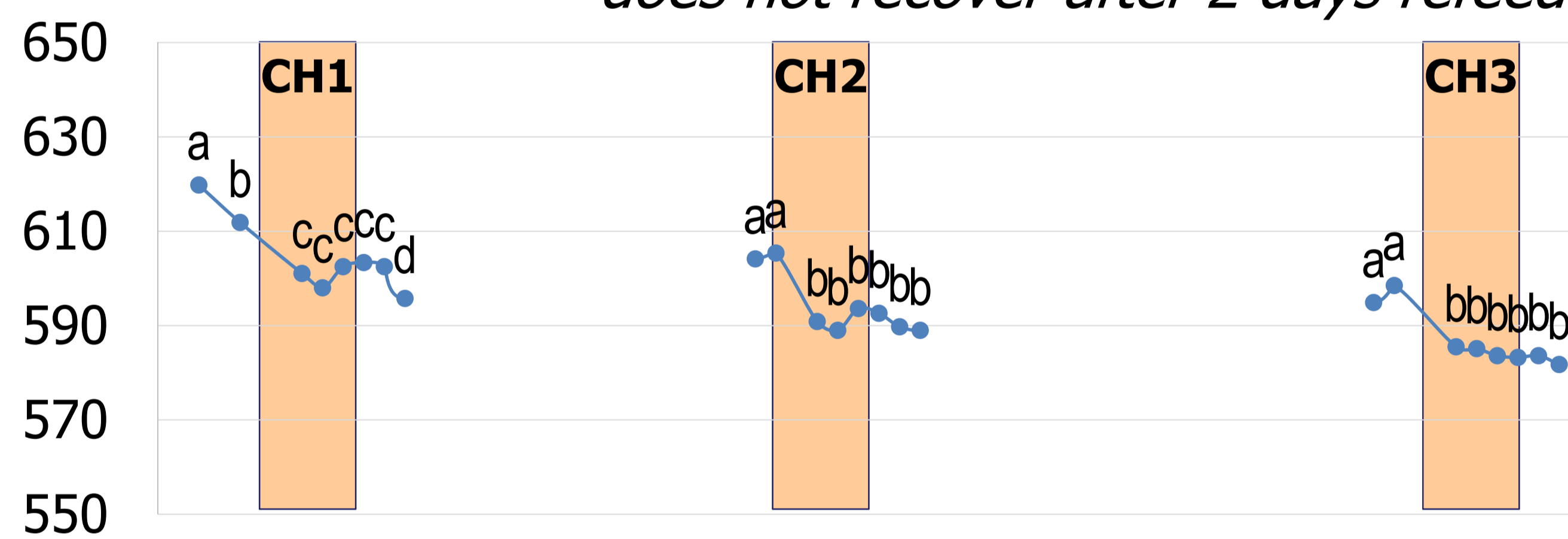
## RESULTS

- Decreasing LW, MY and oxidative status throughout lactation
- Immediate RESPONSE to undernutrition in all challenges

but RESILIENCE decreases through lactation

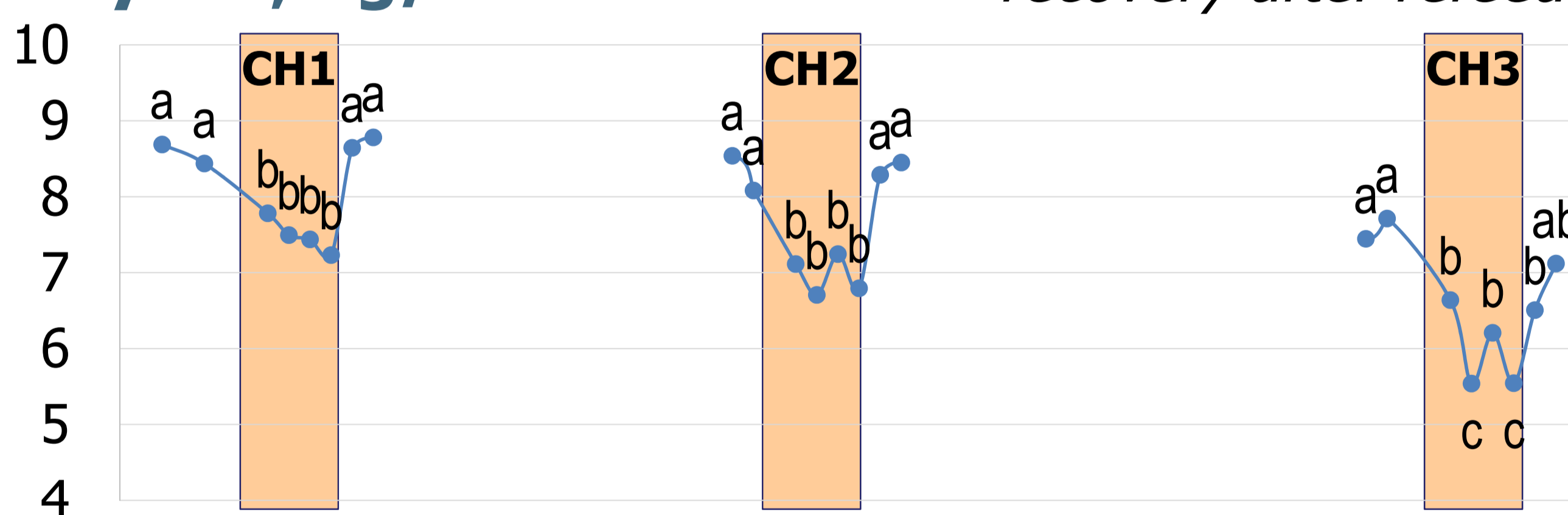
### Cow weight, kg

does not recover after 2 days refeeding



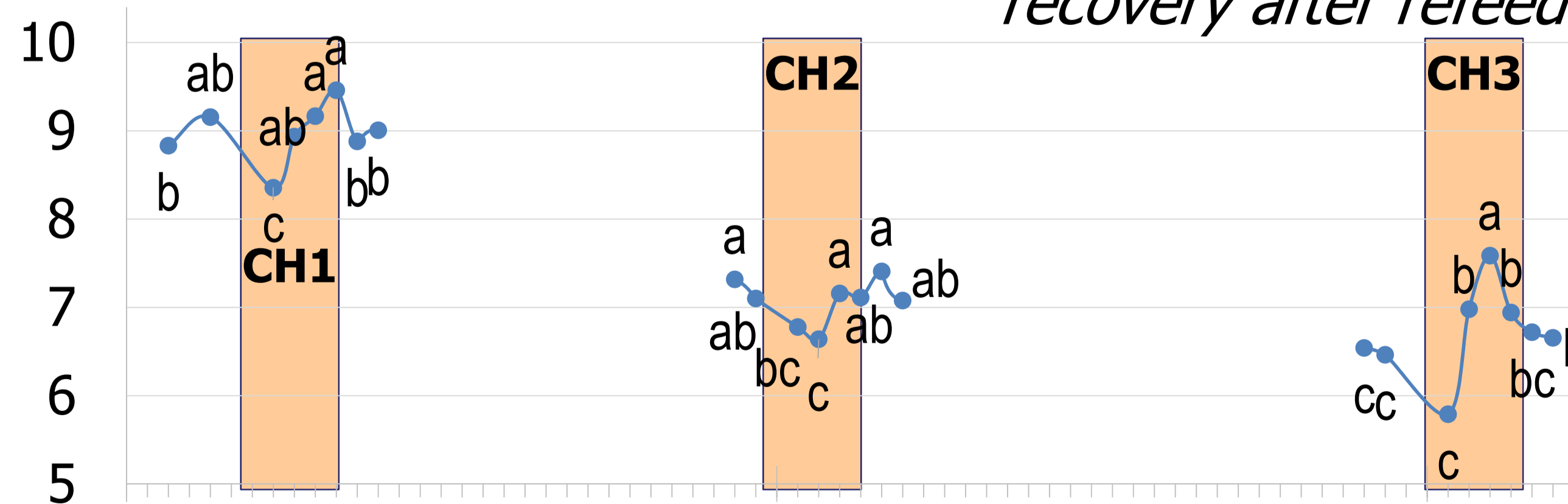
### Milk yield, kg/d

recovery after refeeding



### Oxidative status, MDA μM

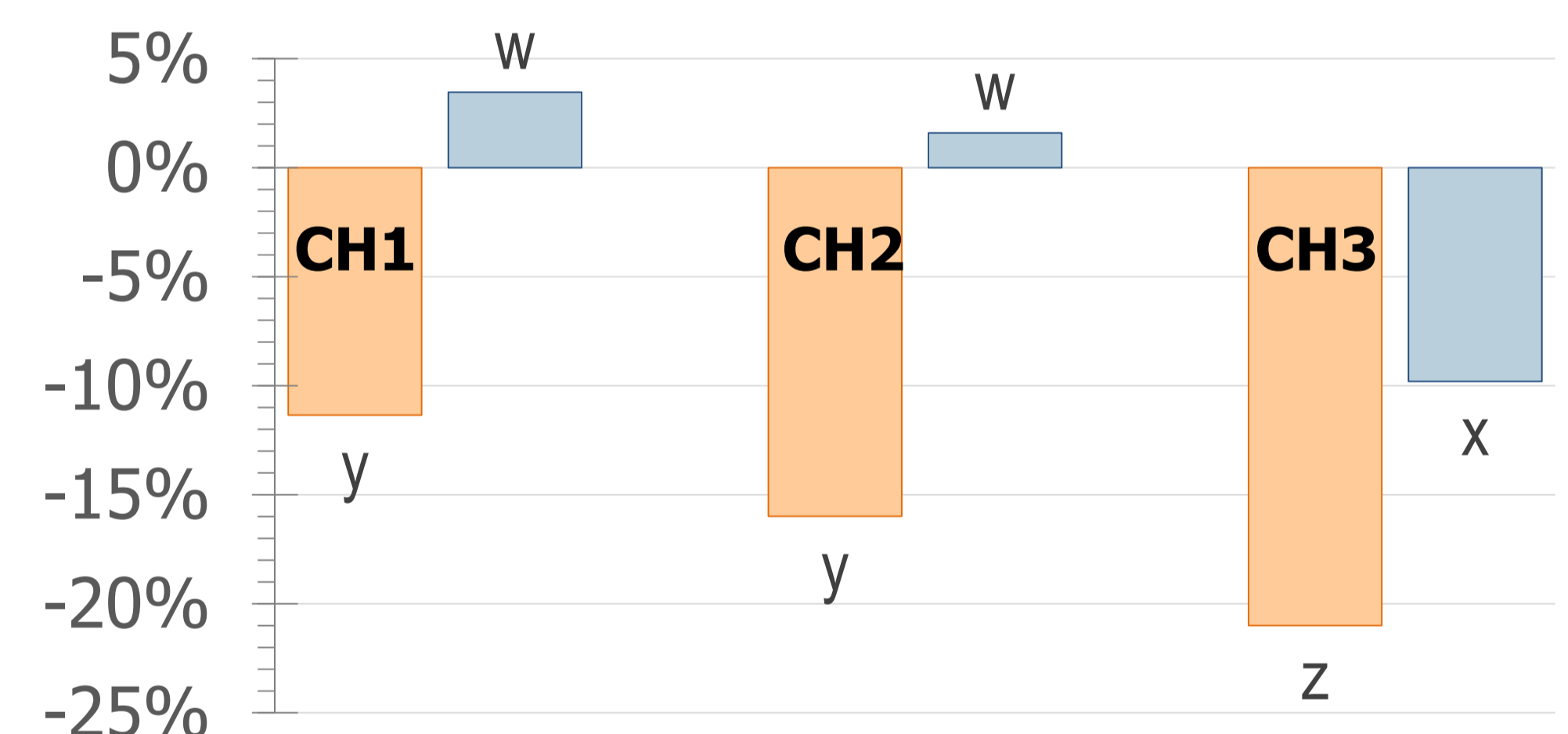
drop and rise during challenge  
recovery after refeeding



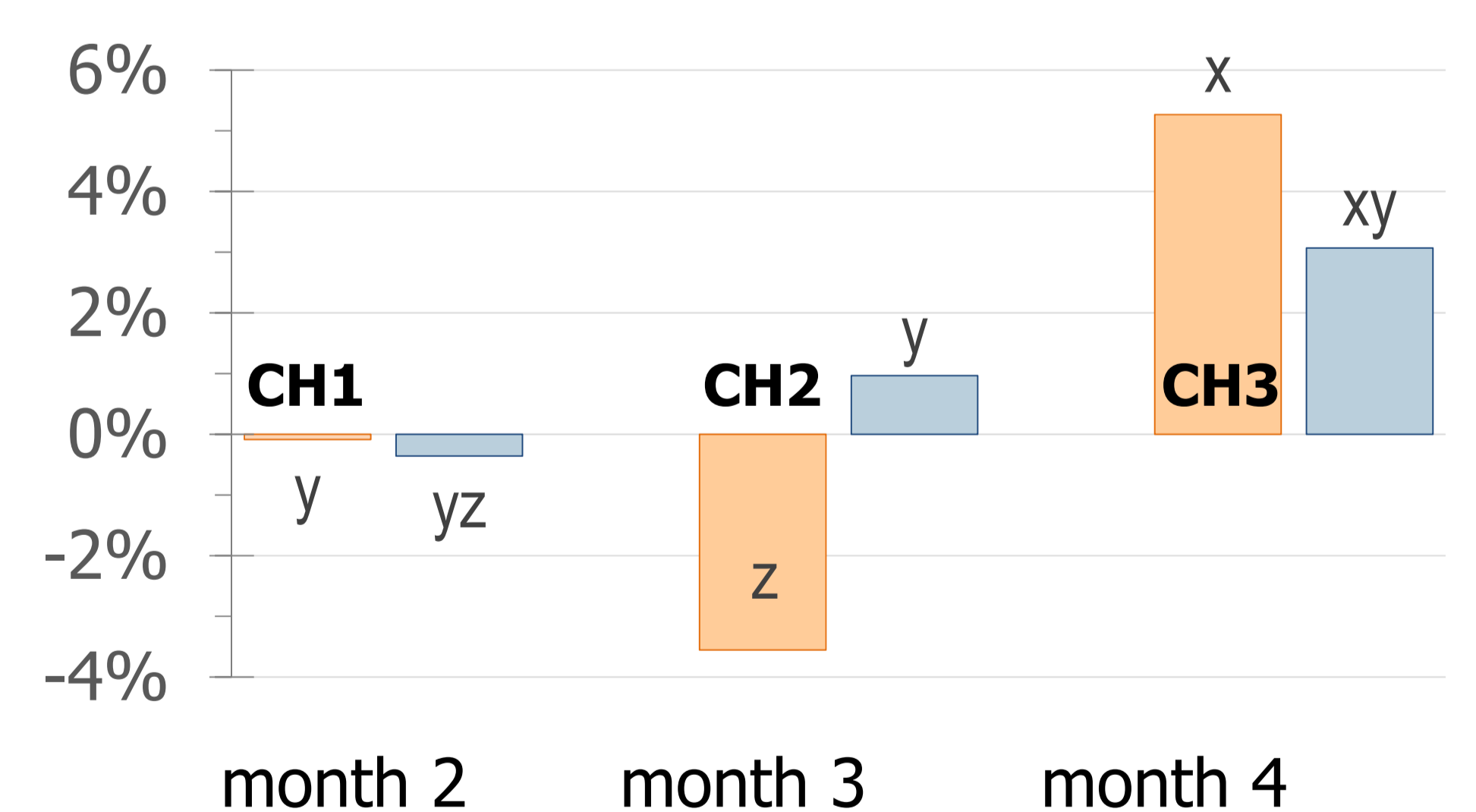
a, b, c, d denote differences among days within challenge (P<0.05)

Δ challenge / basal Δ refeeding / basal

### Δ Milk Yield, %



### Δ MDA, %



w, x, y, z denote differences among periods (P<0.05)

- Greater changes in response to challenge and less recovery from month 2 to 4

## CONCLUSIONS

- The patterns with which beef cows face a short but severe nutrient restriction change throughout lactation.
- Their ability to cope with the challenge and maintain performance declines as lactation advances.