

# Effect of limited vs. ad libitum concentrate feeding on the performance and carcass and meat quality of Parda de Montaña bulls fattened on pasture



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Grazing cattle is often supplemented with concentrates to improve gains and meat quality, even in organic systems. When offered *ad libitum* to reduce workforce, concentrate intake may exceed the max 40% of the daily diet imposed by organic farming regulations.

**OBJECTIVE:** Compare the performance and meat quality of grazing young bulls with restricted vs. *ad libitum* concentrate.

## Material & Methods

### Animals

Parda de Montaña autumn-born bull calves (n=16, aged 6.5 months, 237 kg at turnout)

### Management

- Rotational grazing on mountain meadows: 4 x 0,6 ha
- Fattening concentrate (13.7% CP, 18.8% NDF) offered:

vs. - *ad libitum*: **ADLIB**  
- restricted: **3KG** (per head/day)

- Slaughtered at 1 year of age

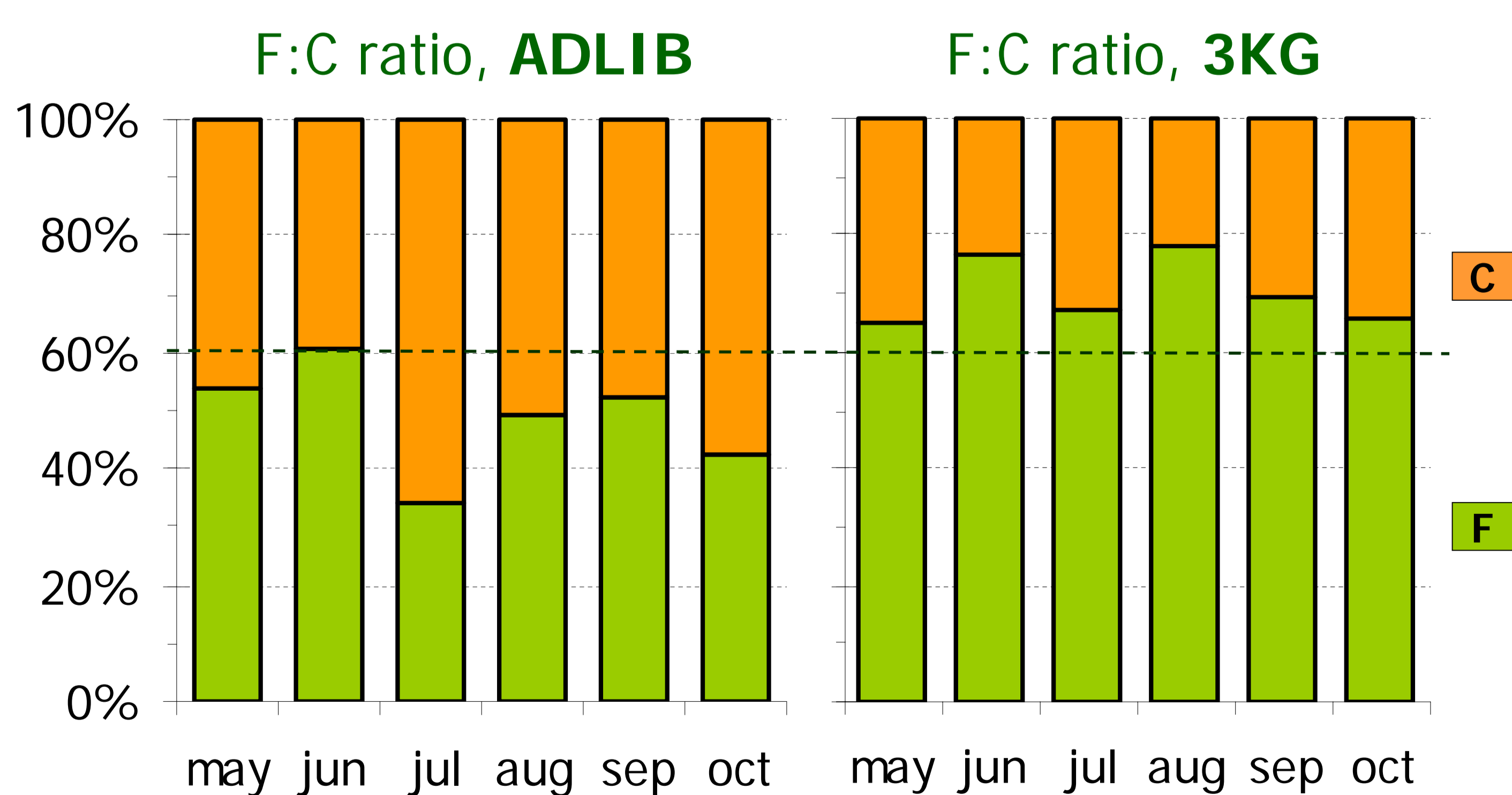
## Results

- Higher **weight gain** in ADLIB animals:

	ADLIB	3KG	
Initial LW, kg	238	236	NS
Final LW, kg	480	448	NS
Gain, kg/d	1.495	1.269	*

- Associated to greater **concentrate intake** (6.3 vs. 2.7 kg DM/d), although grass intake slightly lower in ADLIB than 3KG animals (5.9 vs. 7.2 kg DM/d).

- Forage content** in diet of ADLIB always below 60%:



### Measurements

- Live weight (LW)
- Concentrate and pasture intake
- Carcass quality: weight, dressing percentage, conformation, fat score, dorsal fat depth and instrumental colour
- Meat quality (*Longissimus thoracis*) pH, instrumental colour, texture (W-B shear force), chemical composition and fatty acid profile

- Heavier **carcass**, better conformation and dorsal fat depth in ADLIB, but similar subcutaneous fat colour:

	ADLIB	3KG	
Carcass weight, kg	292	253	**
Dressing percentage, %	60.8	56.6	***
Conformation, S-EUROP (1-18)	U (11.0)	U- (10.0)	0.06
Fat score, 1-5 (1-15)	2 (5.0)	2 (5.0)	NS
Dorsal fat depth, mm	1.31	0.76	0.07
Subcutaneous fat colour:			
L*	71.74	72.49	NS
a*	4.08	2.65	NS
b*	12.98	14.33	NS

- Similar** pH, meat shear force and colour, similar evolution through the ageing period (1-15 d).
- Similar** meat chemical composition.
- Only slight differences in individual fatty acid contents, but not in major groups or ratios:



## CONCLUSIONS

- The different **feeding management** resulted in different gain and carcass weight but did not influence meat quality.
- The **low fat cover** suggests the need of diets with higher energy content or even finishing off-pasture
- Ad libitum* provision of concentrates is not adequate for **organic systems**