# Salt addition to reduce concentrate intake in young bulls

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Organic beef producers seek for additives that restrict intake of ad libitum fed concentrates to achieve 40:60 concentrate:forage ratio (EC Regulation 889/2008) without increasing labour consumption

Does **10% salt proportion** in the concentrate affect performance, intake and health status?

## Material and Methods

Parda de Montaña young bulls (initial weight = 290 kg)
Experimental period: 42 days
Diet: ad libitum lucerne hay + concentrate with different salt (NaCl) content
- **0.5% salt: control** (n=11)
- **10% salt** (n=11)

- Weekly weights ⇒ weight gains
- Daily Intake:
  - concentrate: per animal
  - lucerne hay: per group
  - water: per group
- Blood samples at 0, 14, 28, 42 d to obtain serum for:
  - Electrolyte balance: sodium, potassium and chlorine
  - Renal function: urea and creatinine

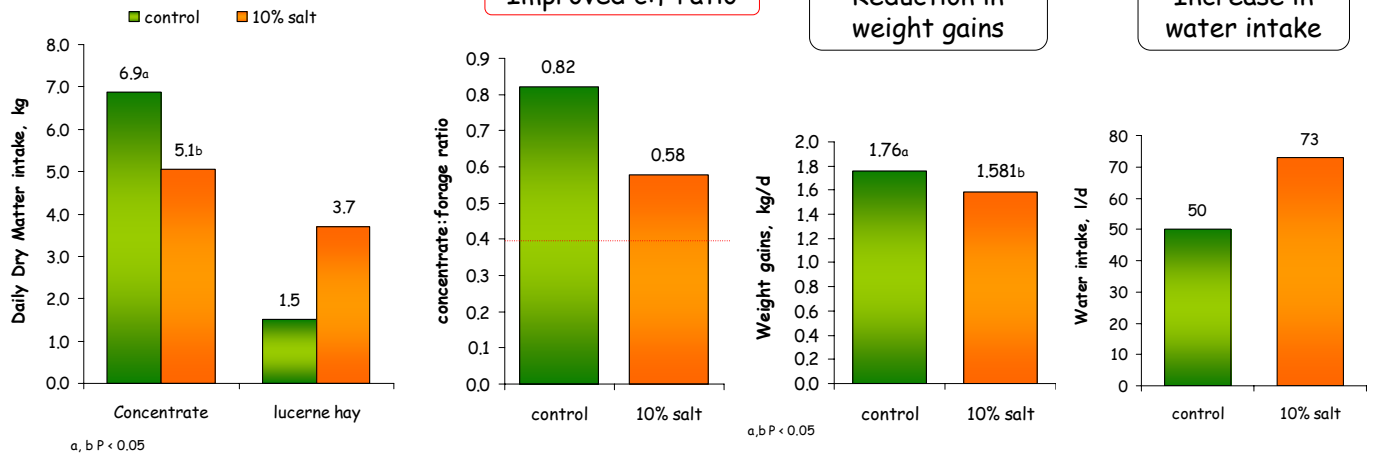
## Results

**Reduction** in **concentrate** intake and **increase** in **forage** intake

Improved c:f ratio

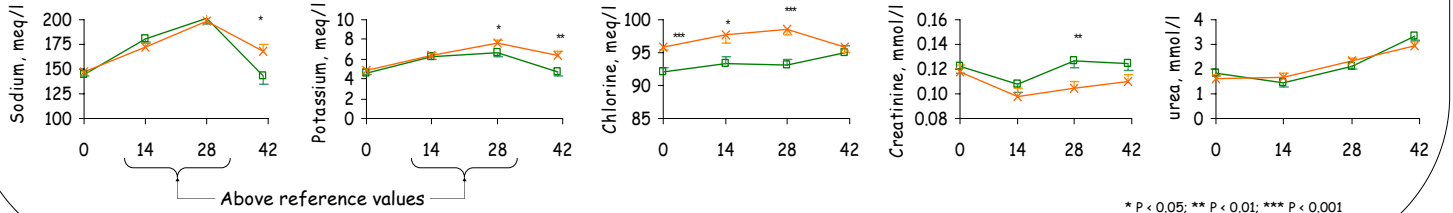
Reduction in weight gains

Increase in water intake




Affected slightly the electrolyte balance

No effects on renal function




* P < 0.05; ** P < 0.01; *** P < 0.001

## Conclusions

- Addition of 10% salt reduced concentrate intake and weight gains without impairing the metabolic status
- Addition of 10% salt improved the c:f ratio but did not reach 40:60, compulsory in EU organic farming

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Organic beef producers seek for fattening diets that comply with the 40:60 concentrate:forage (c:f) ratio imposed by EC Regulation 889/2008 without increasing labour consumption. Adding salt to concentrate may be interesting to reduce its intake provided it does impair animal health. Twenty-two young bulls (290 kg) were assigned to one of two feeding treatments during 42 days (d). Both groups received on ad libitum basis a concentrate (11.8 MJ ME/kg DM, 16.4% CP) that differed in sodium chloride content, 0.35% (Control) and 10% (Supplemented). Animals received lucerne hay (10.2 MJ ME/kg DM, 15.8% CP) and water on ad libitum basis. Concentrate intake and weight were controlled individually and water and hay intake on a group basis. Air temperature was recorded daily. Animals were bled biweekly to study the electrolyte balance (Na, K and Cl concentrations) and renal function (urea and creatinine concentrations). Salt addition reduced weight gains (1.58 vs. 1.76 kg/d for Supplemented and Control animals respectively, $P < 0.05$) and concentrate intake (5.1 vs. 6.9 kg/d, $P < 0.001$) while hay (3.7 vs. 1.5 kg/d) and water intake (73 vs. 50 l/d) increased. Concentrate:forage ratio was 58:42 and 82:18 for Supplemented and Control animals, respectively. Blood parameters remained within the normal reference ranges, except for Na and K in both groups on d 14 and 28. Salt addition increased plasma Cl concentration on d 0, 14 and 28, and K concentration on d 28 and 42, and it decreased creatinine at d 28. However, as water was freely available salt poisoning did not occur. Air temperature increased on d 28 above 25ºC, causing an increase in plasma Na concentration and, concomitantly, water intake. However, plasma Na concentration was not affected by salt addition. Inclusion of 10% salt in the concentrate reduced its intake without impairing the metabolic homeostasis, and c:f ratio was reduced although the compulsory ratio was not achieved.