Meat quality of Dexter cattle kept on alpine pastures compared to Charolais crossbred calves

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Introduction

Remarks
✓ Increasing meat production on alpine pastures (SAV, 2010)
✓ BUT decreasing land use and increasing shrub encroachment

Important
✓ Need for robust and well adapted breeds for these conditions
✓ Breeds with high-grade meat quality

Problems
✓ Dexter have high potential
✓ BUT have never been scientifically studied

Study of carcass and meat quality of Dexter cattle compared to suckling calves and weaned calves grazing on alpine pastures
Aims

(I) Scientific and precise examination of meat quality traits of Dexter cattle

(II) Pre-Study to assess the potential of Dexter cattle on shrub encroached pastures

Hypotheses

(I) Due to the specific genetic Potential and physical activity Dexter have particular meat quality characteristics

(II) The meat quality of Dexter is comparable to suckling calves and weaned calves if kept in the same conditions (alpine pastures)
The Study

Weaned Calves (W)

Suckling Calves (S)

Dexter (D)
The site

ALP WEISSENSTEIN
2026 m.s.l
11 Weeks

Steep pastures
(± 40% inclination)
Material and methods

- 8 Suckling calves „Charolais“
- 8 Weaned calves „Charolais“
- 8 Dexter

Animals slaughtered after 11 weeks on alpine pastures:

- Suckling calves and Dexter with similar fat taxation
- Weaned calves and Dexter with similar weight

Slaughtered at SBAG St. Gallen
Meat quality analysis after 21 days of aging
Two muscles: biceps femoris, longissimus thoracis
Material and methods

Meat and muscle analysis

Carcass:
- Average daily gain
- Haemoglobin content
- Carcass quality (CH-TAX)
- Dressing percentage
- pH (3h and 24h pm)
- Organ weights

Meat quality:
- Water, protein, ash and intramuscular fat content
- Water holding capacity
- Meat colour (Hue, Red, Yellow)
- Tenderness (Warner-Bratzler)
- Sensory analysis
- Fatty acid analysis

Muscle physiology:
- Histology: Muscle fibre typing
- Specific protein degradation and enzymatic activity

Perirenal fat:
- Oxidative stability Ranzimat
- Fatty acid analysis (geplant)
Results Growth and Carcass quality I

Age and weight

Weight at 2014-06-03

Age at 2014-06-03

Average Daily Gain

Weight slaughter
Results Growth and carcass quality II

Carcass taxation and Dressing Percentage

CH-TAX

Fat Cover

Dressing Percentage
Material and methods **Two muscles**

**Rump:**
*Biceps femoris (BF)*
Locomotion

**Sirloin:**
*Longissimus thoracis (LT)*
Posture
Results **Meat quality LT I**

**pH and Colour**

**pH 3h post mortem**

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**pH 24h post mortem**

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**Colour Index Red**

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Results **Meat quality LT II**

*Water holding capacity and tenderness*

**Driploss 24h**

- **Water holding capacity**
  - D: 0.4, W: 1.2, S: 0.8

**Cookloss**

- **Tenderness**
  - D: 15, W: 25, S: 20

**Shearforce**

- **Meat toughness**
  - D: 400 N/cm², W: 500 N/cm², S: 400 N/cm²
Results Meat quality BF I

**pH and colour**

**pH 3h post mortem**

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Results Meat quality BF II

Water holding capacity and tenderness

Driploss 24h

Cookloss

Shearforce

N/cm²

D W S

0 100 200 300 400

D W S

[Image of bar charts showing comparisons between different groups (D, W, S) for driploss, cookloss, and shearforce, with letters indicating statistical differences.]
Schlussfolgerungen

Albeit the rough conditions (steep alpine pastures) and the big difference in age, meat quality traits of Dexter are similar to the high standard meat quality produced by suckling calves.

(I) We can produce high quality meat with Dexter comparable to calves.

(II) Dexter may pose a good breed to make use of marginal or shrub encroached grasslands
Thanks to the SwissDexters Breeders Association for their collaboration
especially Peter Falk and Markus Ackert

...and thanks for your attention

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