

Do high production dairy breeds show larger losses in poor Alpine pastures?

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AIM

Quantifying relative changes of milk yield of three dairy cattle breeds of different levels of productivity when grazing alpine pastures.

CONCLUSIONS

Highly production breeds respond strongly to forage quality differences towards the end of summer, with large loses (or gains) of milk yield when grazing low- (or high-) quality pastures.

Hinterwaelder, a Black Forest old breed, has smaller loses of milk yield when grazing low-quality pastures all along summer grazing.

MATERIALS & METHODS

- Alpine summer pasture at 2000 m asl (Alp Weissenstein)
- 3x 18 days grazing rotations: Early (June), Mid (July) and Late (August)
- 3 vegetation quality types: high, medium and low quality
- 3x dairy breeds: Hinterwaelder (low productivity), Original Brown (medium), Swiss Holstein (high productivity)
- Outcome variable: milk yield (energy corrected) at similar stocking density

RESULTS

Extensive **Hinterwaelder** are lighter and produce less milk than highly-productive **Swiss Holstein**. Dual-purpose **Original Brown** show medium body weight and milk yield.

Early summer grazing (June): milk yield in low-quality pastures is ~5% lower than in medium- or high-quality pastures, irrespective of the breed

Mid summer grazing (July): grazing low-quality pastures reduced ~6% milk production of Hinterwaelder and Swiss Holstein

Late summer grazing (August): +/-10% relative milk production change when grazing high- or low-quality pastures in Original Brown and Swiss Holstein (vs medium quality pastures)

Late summer grazing (August): grazing low-quality pastures reduced ~5% milk production in Hinterwaelder

RECOMMENDATIONS

In late summer grazing, offering your high-quality pastures to the most productive cows boost their milk production, which otherwise fall slump on low-quality pastures. Instead, using Hinterwaelder cows in low-quality pastures result in relatively smaller losses of milk per cow

Breed-specific stocking rate offset milk yield per area



Hinterwaelder

Ø 423 kg; 11 kg milk cow⁻¹ day⁻¹



Original Brown

Ø 630 kg; 12 kg milk cow⁻¹ day⁻¹



Swiss Holstein

Ø 697 kg; 15 kg milk cow⁻¹ day⁻¹

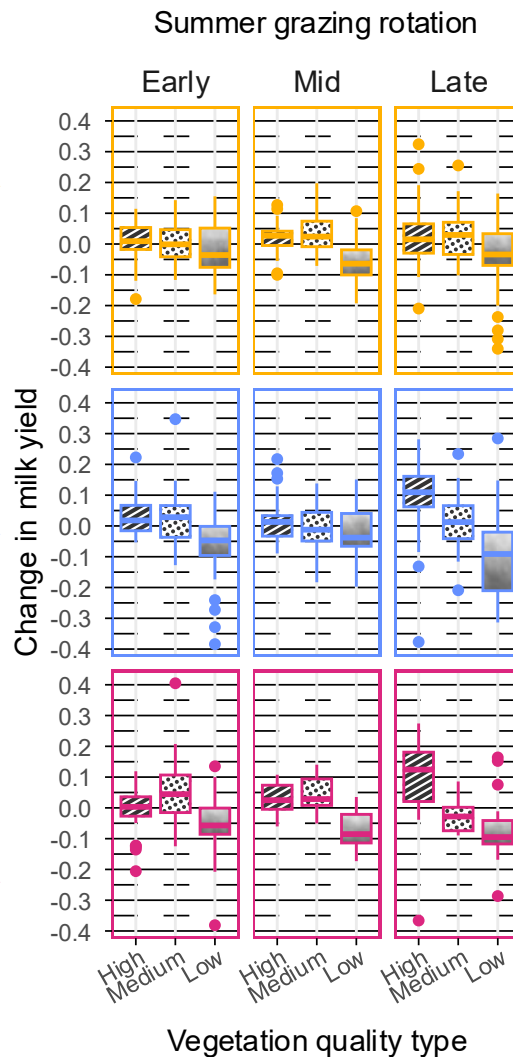


Figure: Relative change of energy corrected milk yield (ratio of the difference with the rotation mean yield of each cow) for dairy cattle breeds (3x) along 18-days summer grazing rotations (3x) in Swiss Alpine rangelands, when grazing vegetation quality types (3x, grazing 6 days per vegetation type).

