

Comparison of Swiss and New Zealand Cows in a Pasture-Based Milk Production System

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Objective

To investigate the attributes of cows adapted to a roughage-based seasonal production system under Swiss conditions.

Material and methods

Pregnant Holstein Friesian heifers with at least two generations of New Zealand ancestry were imported from Ireland in 2006 and placed on twelve dairy farms in Switzerland

For comparison, pairs of Swiss (CH) and New Zealand (NZ) cows were established on individual farms with similar age (± 6 months) and calving date (± 35 days). The Swiss cows consisted of 19 Brown Swiss (BS), 13 Fleckvieh (FV) and 14 Holstein Friesian breeds (HF).

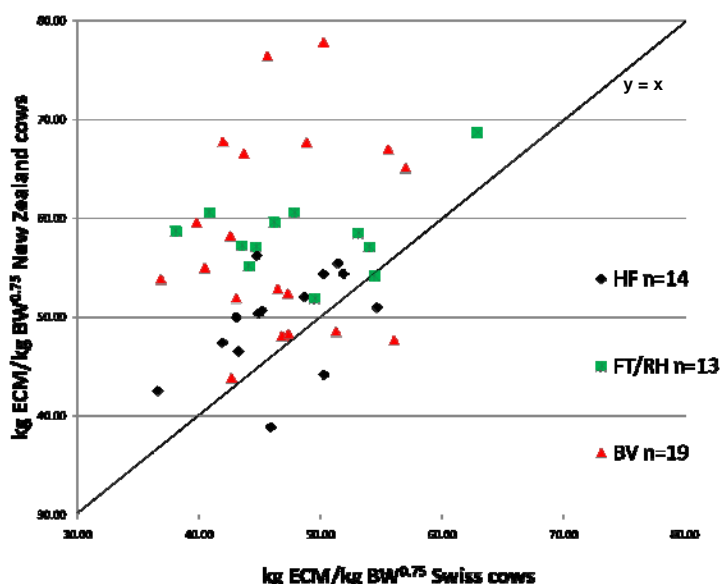
Results

Table 1: Comparison of performance and efficiency between Swiss and New Zealand Dairy cows during second lactation

		Body weight	Days in Milk	kg ECM	kg	Persis- tency	Fat %	Protein %	Milk solids kg	kg ECM/ kg met BW	kg milk solid/ kg met BW
all	CH n=46	577***	281	5486	5452***	75*	4.0***	3.3***	400***	46.6***	3.41***
all	NZ n=46	518	288	5688	6030	79	4.4	3.6	451	55.6	4.15
HF	CH n=14	603	280	5696	5563	74	3.9	3.3	406	46.0	3.39
	NZ n=14	524	283	5265	5449	78	4.2	3.5	405	49.7	3.68
FV	CH n=13	627	284	5664	5806	75	4.2	3.4	428	46.5	3.45
	NZ n=13	517	293	5936	6297	82	4.4	3.6	471	56.2	4.33
BS	CH n=19	525	281	5207	5141	75	3.9	3.3	376	47.0	3.40
	NZ n=19	514	288	5866	6322	77	4.5	3.6	474	58.7	4.38

Difference: all CH – all NZ: * p – value ≤ 0.05 ; *** p – value ≤ 0.001

Figure 1: Comparison of efficiency (ECM/kg BW^{0.75}) of pairs of CH and NZ cows during second lactation (2008)



- CH HF and FV cows are heavier than NZ cows
BS and NZ cows have similar BW
- Milk production, milk contents and efficiency (kg ECM/kg met BW) are significantly higher in NZ cows compared to BS and FV cows.
- Milk production and efficiency of NZ and CH HF cows are similar

Conclusions

- NZ cows are more efficient than BS and FV cows under a pasture-based milk production system in Switzerland.
- Additional variables are currently being analysed, which will hopefully help to achieve the aim of finding the key attributes of cows adapted to a pasture-based seasonal production system