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Objectives

- To contribute to genetic characterization of Slovak Pinzgau cattle and to fit the alternative ways of usage.
- To estimate the allelic and genotypes frequencies of A type of beta casein (CSN2) in Slovak Pinzgau cattle.
- To test whether CSN2 genotypes affect milk fat and protein content in Slovak Pinzgau cattle.

Conclusions

- Almost the same occurrence of A1 and A2 allele was found in endangered population of Slovak Pinzgau cattle.
- No significant differences in fat and protein content according to CSN2 genotypes were found in this preliminary study.
- Only fat content between A1A2 and A2A2 genotypes was close to statistically significant difference (P=0.078).

Material and Methods

- 81 primiparous Slovak Pinzgau cows producing under the same production environment were included in the analysis.
- DNA was isolated from tail hair bulb, genotyping was done using ACRS-PCR technology.
- Allelic and genotypes frequencies of A type of CSN2 were determined.
- Effects of CSN2 genotypes on fat and protein content were studied using GENERAL LINEAR MODEL (GLM procedure; SAS, 2002).
- Statistical significances of differences were determined using SCHEFFE' S multiple range tests (SAS, 2002).

Results

Frequencies of A1 and A2 allele of CSN2 were 0.48 and 0.52. Cows numbers and frequencies of CSN2 genotypes are given in Table 1. The heterozygote animals prevail. Differences in fat and protein content are given in Table 2.

Table 1: CSN2 genotypes and frequencies

Genotypes	Cows number	Frequency
A1A1	10	0.123
A1A2	58	0.716
A2A2	13	0.161

Table 2: Means and standard errors for fat and protein content by CSN2 genotypes

Fat content (%)		
A1A1	A1A2	A2A2
$\mu \pm s_{\mu}$	$\mu \pm s_{\mu}$	$\mu \pm s_{\mu}$
3.96 ± 0.126	4.06 ± 0.052	3.78 ± 0.110
A1A1 : A1A2	P=0.758	
A1A1 : A2A2	P=0.582	
A1A2 : A2A2	P=0.078	
Protein content (%)		
A1A1	A1A2	A2A2
$\mu \pm s_{\mu}$	$\mu \pm s_{\mu}$	$\mu \pm s_{\mu}$
3.47 ± 0.060	3.37 ± 0.025	3.35 ± 0.053
A1A1 : A1A2	P=0.282	
A1A1 : A2A2	P=0.307	
A1A2 : A2A2	P=0.945	