

# Genetic diversity in the Slovak Spotted breed using pedigree information

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## Background and Aim

Slovak Spotted is a dual-purpose breed with a good milk and meat production, which belongs to the Simmental type of cattle.

The aim of this study was to:

- determine the pedigree completeness,
- inbreeding levels,
- characteristics of gene origin in Slovak Spotted breed.

## Results

Variable	$\bar{x}$	s	$x_{\min}$	$x_{\max}$
The maximum number of generation traced	8.06	1.44	0	12
The average number of fully traced generations	2.10	0.64	0	5.0
The equivalent complete generations	4.45	0.78	0	6.46
The coefficient of inbreeding ( $F_i$ )	0.35	0.01	0	26.17
The individual increase of inbreeding ( $\Delta F_i$ )	0.09	0.004	0	14.67
Average relatedness coefficient (AR)	0.8	0.003	0	2.25
Number of founders ( $f$ )	42,398	-	-	-
Effective number of founders ( $f_e$ )	346	-	-	-
Effective number of ancestors ( $f_a$ )	87	-	-	-
Number of ancestors explaining 50% diversity	44	-	-	-

## Conclusion

The level of inbreeding gain per generation and relatedness were under 1%. The comparison between the  $f$  and  $f_e$  advert to a decrease of genetic diversity as consequence of unequal contributions of founders. This could happen due to excessive use of some animals as parents of subsequent generations. In order to prevent loss of diversity within breed it is needed to monitor and use suitable mating strategy.

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