60th Annual Meeting of the European Association for Animal Production — Barcelona from 24th to the 27th August 2009

S.40 „Pig Production Free Communications“

THE INFLUENCE OF THE GENE MYF6 ON THE SELECTED INDICATORS OF THE FATTENING CAPACITY AND THE CARCASS VALUES OF PIGS

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Objective

The objective of this study was to determine the effect of MYF6 gene on selected traits of carcass value in pigs.

Materials and Methods

In the course of monitoring the influence of the polymorphic variants of the gene MYF6 on indicators of the fattening capacity and the quality of the meat, 102 pigs of the Czech Large White breed and interbred combinations Czech Large White x Czech Landrace , Pietrain x (Czech Large White x Czech Landrace) and (Czech Large White x Duroc) x (Czech Large White x Czech Landrace) were tested at the test station in Ploskov/Lány.

After reaching a live weight of about 123 kg, the animals were slaughtered. The polymorphism of the gene MYF6 at intron 1 was identified by means of the method designed by Vykoukalová et al. (2003).

The results of the tests were evaluated by statistical and mathematical methods, the SAS programme, and the procedures MEANS, UNIVARIATE, GLM (SAS, 2001). The differences among the individual monitored features were tested by variance analysis. For the evaluation of the influence of a genotype the following model was applied: $Yijk = \mu + G_i + P_j + H_k + e_{ijk}$, when: μ = the average of the population, G_i = the stable effect of the genotype MYF6 (AA, AB, BB), P_j = the stable effect of sex, H_k = the stable effect of weight, e_{ijk} = residual error.

Results

Table 1.: Frequency of the alleles of the gene MYF6 within the monitored group

	MYF6/BseRI	
	A	B
R	35.3	64.7

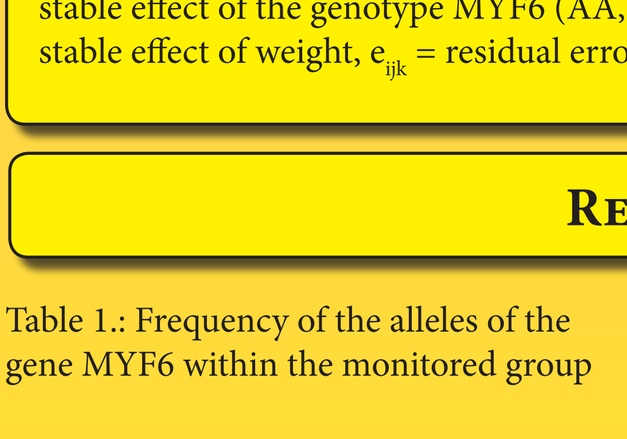

Table 2.: Number and frequency of individual genotypes within the monitored group

	MYF6/BseRI		
	AA	AB	BB
N	22	28	52
R	22	27	51

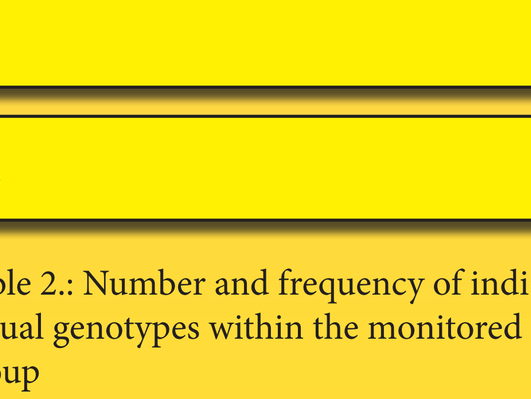

Table 3.: Influence of the genotypes of the gene MYF6 on the selected indicators of the breeding ratio and the quality of meat.

Traits	MYF6/BseRI AA	AB	BB
Average daily weight gain (g/day)	892.8*	894.6*	925
Live weight (kg)	108.4*	109.6*	118.7
Weight of the right side of the carcass (kg)	42.7	43.5	47
Backfat thickness (mm)	19.2*	20.1	24.3*
Lean meat content – ZP method (%)	59.6*	58	54.9*

**(P ≤ 0.01); *(P ≤ 0.05)

Conclusions

- In gene the allele A prevailed.
- In the gene MYF6 the most frequent genotype was BB (52 individuals). The number of AA genotypes (only 22 individuals) was the least.
- Within the genes MYF6 serious statistical differences relating to the average daily weight gain were identified (P ≤ 0.05) within the genotypes AA and AB. The average daily weight gain shown by individuals with genotype AB (894.6 g/day) was higher than that of those with genotype AA (892.8 g/day).
- Serious statistical differences in the live weight (P ≤ 0.05) were determined between genotypes AA and AB. The individuals with genotype AB showed a higher live weight (109.6 kg) than those with genotype AA (108.4 kg).
- A serious statistical difference (P ≤ 0.05) in the height of the backfat thickness was also identified in our study. The backfat thickness of animals with genotype BB was greater (24.3 mm) than that of the animals with genotype AA (19.2 mm).
- The individuals with genotype BB showed a higher fat content of main meat parts (7.9 kg) than those with genotype AA (5.3 kg).
- Significantly lower weight of neck (2.9 kg) and proportion of neck (6.7%) were found in pigs of the AB genotype than in pigs of the genotype AA (3.1 kg, 7.2%).
- Pigs of the genotype AB had significantly lower weight of belly (7.8 kg) but significantly highest proportion of belly (18%).

Table 4.: Influence of the genotypes on the indicators of the weight of selected parts

Traits	MYF6/BseRI AA	AB	BB
Weight of main meat parts (kg)	23.2	23.2	23.9
Proportion of main meat parts (%)	54.3	53.5	51
Fat content of main meat parts (kg)	5.3**	5.9	7.9**
Proportion of fat of main meat parts (%)	12.4**	13.5	16.6**
Weight of neck (kg)	3.1*	2.9*	3.2
Proportion of neck (%)	7.2*	6.7*	6.8
Weight of shoulder (kg)	4.3	4.3	4.4
Proportion of shoulder (%)	10.2	10	9.4
Weight of loin (kg)	6	5.9	6.2
Proportion of loin (%)	14	13.7	13.2
Weight of ham (kg)	9.8	10	10.1
Proportion of ham (%)	23	23	21.6
Weight of belly (kg)	7.5	7.8*	8.3*
Proportion of belly (%)	17.6	18*	17.6*

**(P ≤ 0.01); *(P ≤ 0.05)

This research was supported by the Ministry of Agriculturae (QG 60045) and the Ministry of Education of Czech Republic (MSM 60460709).