



Assessment of the influence of IGF2 gene polymorphism in boars on economically significant traits

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Abstract

Studies of polymorphism in the IGF2 gene are of interest due to their association with economically useful traits in pigs. The aim of this work was to study the effect of IGF2 polymorphism on the variability of meat and fattening traits in pigs and to control the preservation of high reproductive qualities.

Material & Methods

The genotyping was performed using RT-PCR approaches were generated on the genetic resource collection of the L.K. Ernst Federal Research Center for Animal Husbandry. The total of 272 Large White (LW) and 301 Landrace (L) boars was investigated.

Reproductive performance evaluated on 22082 farrows from these boars.

Analysis of productivity data was performed taking advantage of the model:

$$y = \mu + \text{Breed} + \text{IGF2} + \text{Breed} \times \text{IGF2} + e,$$

where y is the productivity index for traits: weight at start of the test (BWs), weight at the end of the test (BWe), age of reaching 100 kg (AGE100), average daily gain (ADG), fat thickness (BF), litter size (LS), live-born (LB) and stillborn piglets (SB), the number of weaned piglets (Wean), the weaning weight (WWT),

μ is the total average for a sample of n animals;

Breed - the influence of the breed factor;

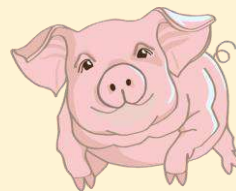
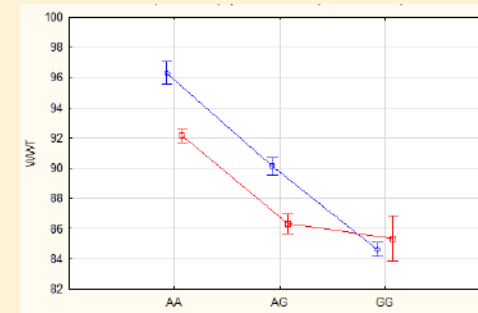
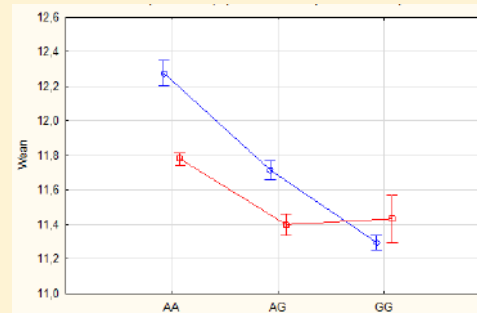
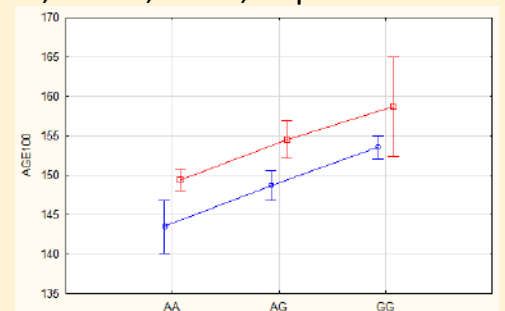
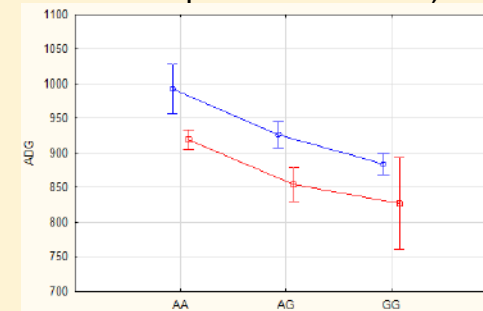
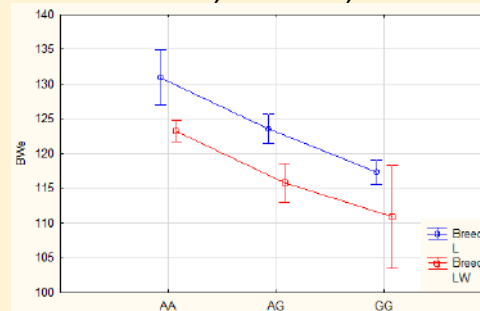
IGF2 - gene factor effect;

Breed \times **IGF2** - factor interaction effect;

e - error.

Results

Genotypes have been identified: at LW AA 73.5%, AG 23.2%, GG 3.3%; for L AA 10.3%, AG 35.2%, GG 54.5%. A significant effect of the IGF2 gene on variability was revealed at $p < 0.001$ BWe, ADG, LS, LB, Wean, WWT, at $p < 0.01$ on BWs, AGE100; when factors interact at $p < 0.001$ on ADG, AGE100, Wean, WWT, at $p < 0.05$ on LB.



Conclusion

Revealed animals with genotype AA showed the best results in terms of meat and feeding qualities, as well as reproductive qualities.

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