SELF PERFORMANCE TEST OF BRITISH CANDIDATE BEEF BULLS

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Introduction

In the last two decades the developments of genetics, nutrition and management around the world contributed to the progress of beef cattle sector. Improving the quality the breeding decisions and the selection of breeding animals play an important role. The bases of these processes are the performance tests. The aim of the performance tests is to select breeding animals with great genetic value, primarily bulls.
By estimating the breeding value is taken into account the individual's ancestry, the result of self-performance and progeny test. The organization of the progeny test is difficult in beef cattle breeding, so the importance of self-performance is dominant. The aim of self-performance test is the pre-selection of the candidate bulls by the performance of meat production and fertility traits.

Materials and Methods

The authors evaluated the self-performance test results of Angus (n=24), Hereford (n=37) and Galloway (n=6) candidate bulls on the Experimental and Research Farm of the Kaposvár University, between the time line of 2005- 2009. The production traits (365 days adjusted weight, average gain during test, back-fat thickness), the reproduction traits (205 days adjusted weight, size points, height at hip, scrotal circum) and the selection index were analysed. Microsoft Excel data management software, and the SAS 9.1 statistical software were used. The appraisal of the impact of age-group and breed was done with a multivariate analysis of variance (MANOVA). The assessment of the differences between the mean values was made with the Tukey's test, and the relationship between attributes was qualified with correlational analysis.

Results

The age of genotypes did not differed significantly at the beginning and at the end of self-performance test. Significant difference (P<0.05) was showed for the liveweight among breeds(Table 1.).

Significant difference was found among breeds the production and reproduction traits (Table 2.), except the size point and scrotal circum. Except these traits, the performance of angus bulls were higher than the other breeds. The measured values of scrotal circum of breeds were higher than the literature's data.

The total merit index of Angus bulls (Figure 1.) was significant higherhigher than that of Hereford (5.2%) and Galloway (13.6%) bulls.

Medium and strong relationship was found among the average weight gain during the test, adjusted weight at the end of self-performance test and   back-fat thickness (Figure 2.) This suggest that the backfat-thickness was influenced by age (weight) of animals

Conclusions

1. The results of self-performance test In the most of analysed traits of Angus, Hereford and Galloway candidate bulls showed significant breed differences, the reason of this is the different growth rate of genotypes.
2. At the end of the self-performance test the scrotal circum is one of the most important reproduction traitit was higher than the desired minimal value published in literature.
3. Medium-strong relationship was found between the backfat thick and the live weight, therefore at the same age performed backfat thickness measurement of bulls is more favourable than it measured at the end of self-performance test.

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Table 1. Adjusted weight and age of the bulls participating in the Self Performance Test   (x ±SD)

Traits	Angus	Hereford	Galloway
	n=24	n=37	n=6
Adjusted weight at the beginning of the self performance test (kg)	288.8 45.7[a]	251.7 42.8[a]	203.3 36.7[c]
Age at the beginning of the self performance test (day)	269.8 41.7	246.6 43.1	255.3 39.5
Adjusted weight at the end of the self performance test (kg)	537.7 56.1[a]	466.5 49.0[b]	406.00 77.8[c]
Age at the end of the self performance test (day)	450.8 44.0	430.9 42.3	438.0 40.1

a,b,c P<0.05

Table 2. Values of the productive and reproductive properties (x ±SD)

Traits	Angus	Hereford	Galloway
	n=24	n=37	n=6
Daily average weight gain till the beginning of the Self Performance Test (g/day)	947.2±88.0[a]	880.5±151.0[a]	696.2±183.6[b]
Average weight gain during test (g/day)	1378.1±184.0[a]	1171.0±203.2[b]	1114.4±301.6[b]
Average weight gain under life time (g/day)	1122.0±98.4[a]	1003.2±115.2[b]	871.6±222.8[c]
365 days adjusted weight (kg)	442.5±37.4[a]	409.9±34.5[b]	352.5±78.5[c]
Back-fat thickness (mm)	14.0±2.4[a]	11.7±2.7[b]	9.8±2.3[b]
205 days adjusted live weight (kg)	238.3±24.9[a]	222.2±29.2[b]	172.7±36.6[c]
Size points	48.0±2.3	47.5±2.0	46.2±3.1
Height at hip (cm)	121.6±3.3[a]	119.2±3.5[a]	109.5±8.0[b]
Scrotal circum (cm)	41.0±3.4	39.2±3.6	37.3±4.5

a,b,c P<0.05
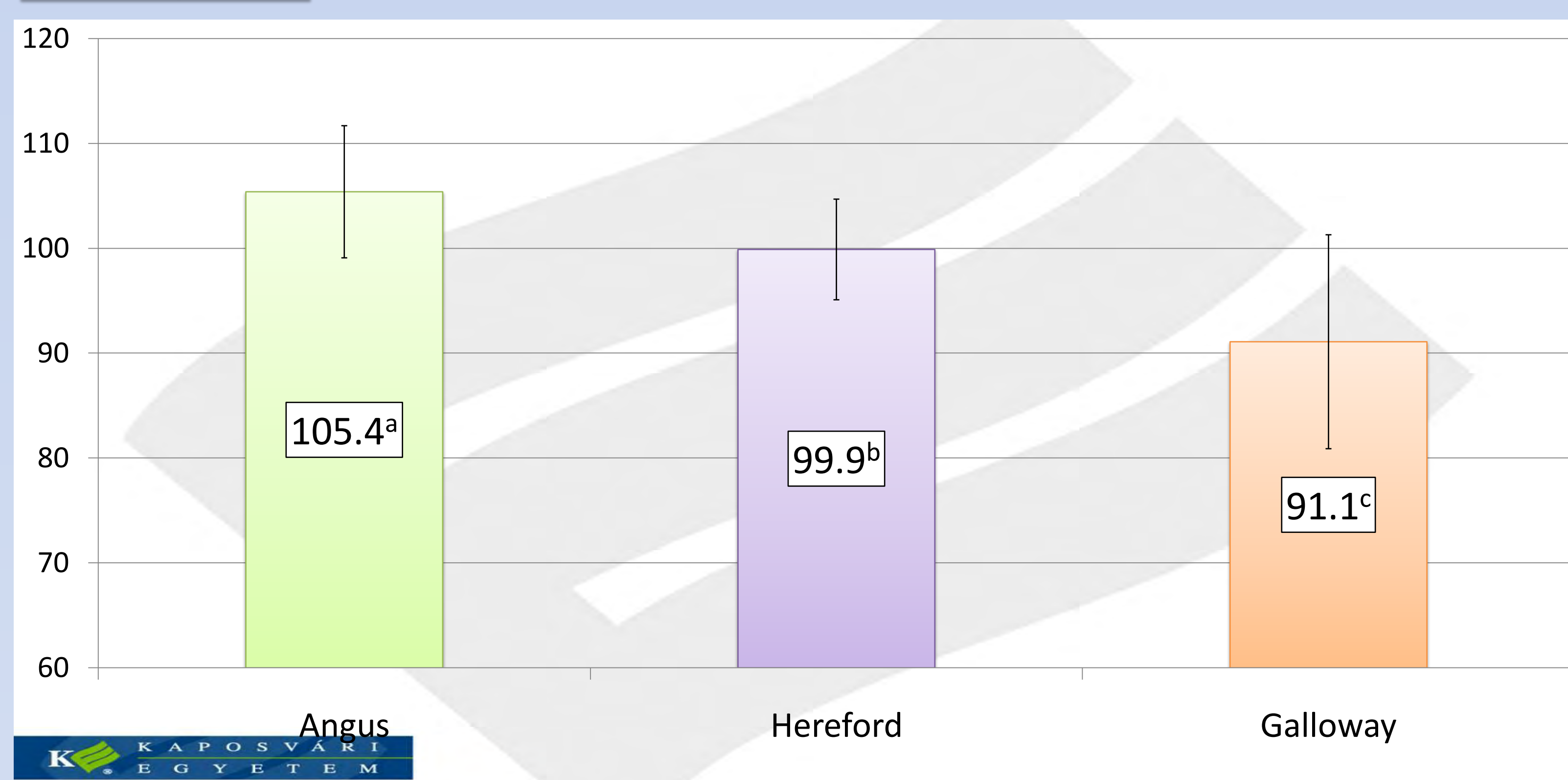
Figure 1. Total (Beef) Merit Index of breeds

Angus 105.4[a]
Hereford 99.9[b]
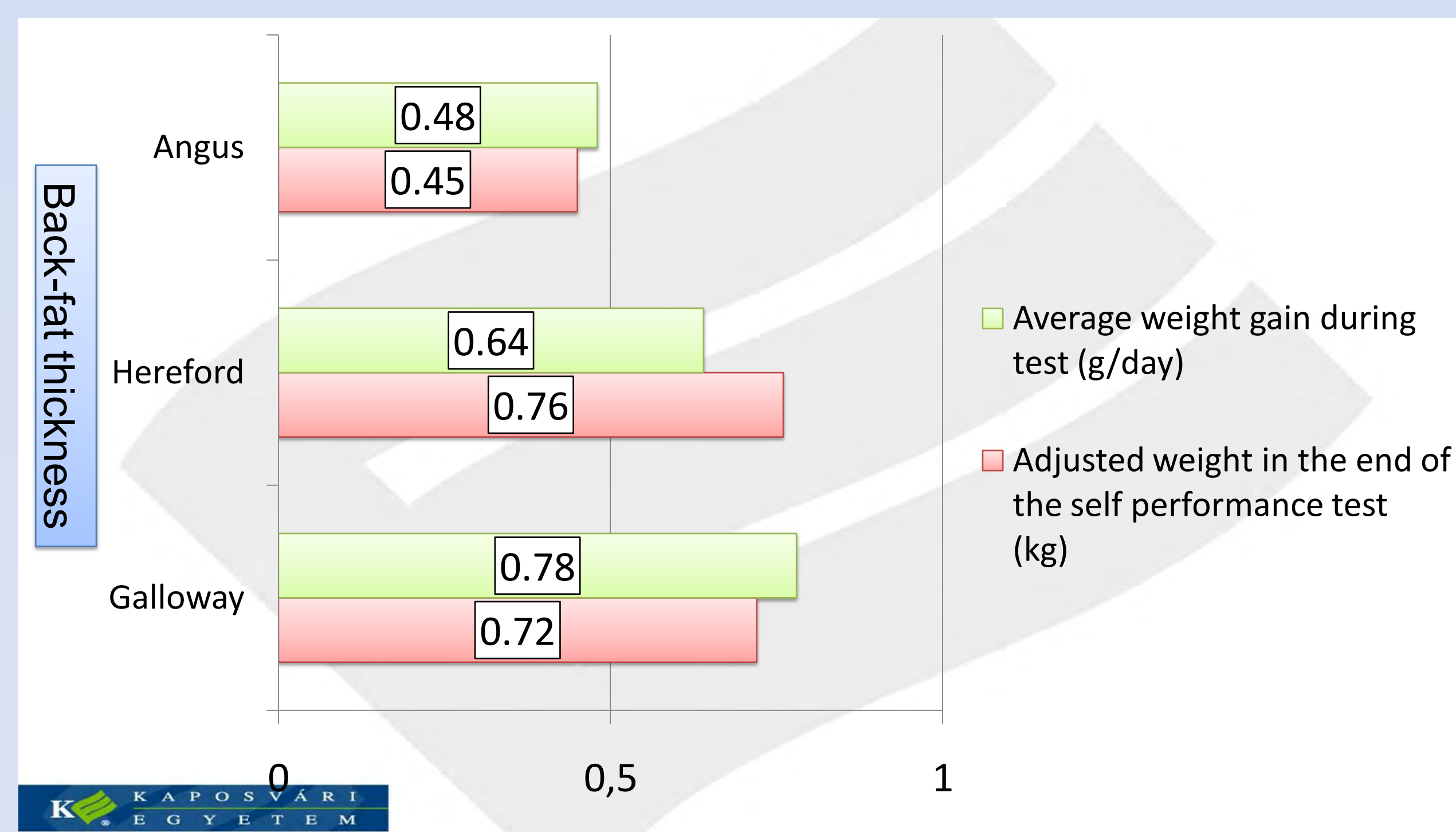Galloway 91.1[c]

Figure 2. Relation of backfat thickness to live weight and gain performance of breeds

Back-fat thickness

Angus: 0.48 / 0.45
Hereford: 0.64 / 0.76
Galloway: 0.78 / 0.72

☐ Average weight gain during test (g/day)
☐ Adjusted weight in the end of the self performance test (kg)

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