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The effect of growth rate to carcass formation in hybrid pigs

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OBJECTIVE

The objective of the test was to review the effect of the diverse intensity growth level attained in the course of the test fattening to the achieved parameters of meatiness and production of MLLT of the hybrid pig population.

MATERIAL AND METHODS

- In the whole 216 abattoir pigs of currently bred final hybrids in the Czech Republic, of balanced gender, were tested. 1625 measurements were effected,
- the pigs were penned in couples of well balanced sex. The feeding by CFM (Complete Feed Mixture) ad lib, by means of self feeders of the company Duraumat, with continuous transition from one phase to the second
- from 55 kg of the LW (live weight) of the tested pigs the depth of MLLT 70 mm was investigated in 7 day's intervals para-medially from the centre of the vertebral channel and the height of dorsal fat also 70 mm para-medially from the centre of spine in the place between the 2 and 3 penultimate thoracic vertebrae – position B and above the 3 - 4 hipster vertebrae – position A,
- for the evaluation of the growth intensity the pigs were regularly weighted and on basis of the ascertained values they were divided according to their attained overall growth intensity. The first group was created by the pigs with the overall ADG within the test up to 750 g, the second with 751 - 850 g, third with 851 - 950 g, fourth 951 - 1050 g and fifth over 1050 g,
- subsequently in all five groups the monitoring of musculature formation, depth of MLLT (place A, B) and height of fat (place A, B) were effected in the weight intervals below 60 kg (HM (WEIGHT) 1), 60.1 -70 kg (HM2), 70.1 - 80 kg (HM3), 80.1 - 90 kg (HM4), 90.1 -100 kg (HM5), 100.1 - 110 kg (HM6) and over 110K kg of LW (HM7).

CONCLUSIONS

- From the obtained results it is evident, that in the course of the overall estimation for the testing time in the pig bodies with growing growth intensity the % representation of meat drops, the height of dorsal fat grows, and it both in the measuring position A as well as B and the MLLT depth is higher at pigs with the average growth intensity (751 – 1050 g),
- as regards the attained lean meat share at various growth intensities it is evident, that the share of meat in the pig bodies statistically evidently declines (on the significance level $P<0.05$, $P<0.01$ resp. $P<0.001$) with the increasing growth intensity, and it in all tested weight levels,
- as regards the MLLT formation (on the level of 2 - 3 penultimate thoracic vertebrae - place B), with the increasing growth intensity the height of the MLLT muscle decreases in the individual weight levels (on the significance level $P<0.05$ resp. $P<0.001$) and at the same time the height of dorsal fat is growing statistically evidently (on the significance level $P<0.05$ resp. $P<0.001$). This trend was confirmed at all weight levels,
- on the other hand in the measuring position A (on the level between 3 – 4 hipster vertebrae) no explicit drop of MLLT muscle height was ascertained and even no growth of dorsal fat height with the increasing growth intensity in the individual observed weight levels.

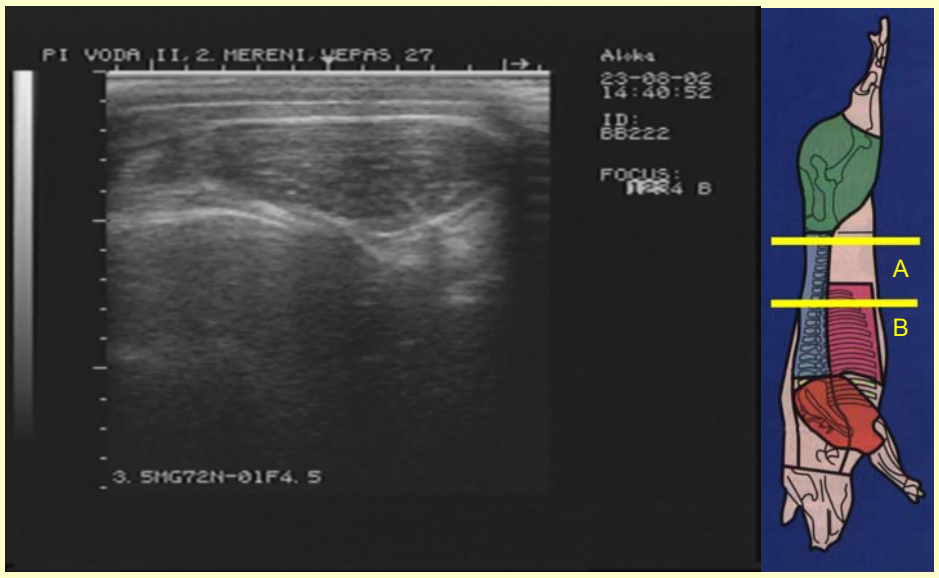


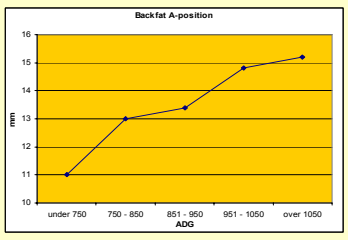
Table 1.a. The influence of growth intensity on selected parameters of carcass value without respect to weight categories - backfat in A-position

ADG (g/day)	Backfat A-pos. (mm) x ± SD
under 750	11.0 ± 3.4
750 - 850	13.0 ± 2.9
851 - 950	13.4 ± 3.1
951 - 1050	14.8 ± 3.3
over 1050	15.2 ± 3.5

Table 1.b. The influence of growth intensity on selected parameters of carcass value with respect to weight categories backfat in A-position

ADG (g/day)	HM 1 x ± SD	HM 2 x ± SD	HM 3 x ± SD	HM 4 x ± SD	HM 5 x ± SD	HM 6 x ± SD	HM 7 x ± SD
under 750	a 8.1 ± 1.2	9.4 ± 1.5	10.8 ± 2.1	12.4 ± 1.8	16.0 ± 3.9	.	.
750 - 850	a 10.9 ± 2.7	11.0 ± 2.1	11.7 ± 2.0	13.1 ± 2.2	14.4 ± 2.6	a, b 16.3 ± 2.8	.
851 - 950	9.6 ± 2.5	11.0 ± 1.7	11.9 ± 2.0	12.8 ± 2.1	13.9 ± 2.5	15.6 ± 2.8	a, b 17.3 ± 3.5
951 - 1050	9.9 ± 1.3	11.7 ± 2.0	12.5 ± 2.0	13.2 ± 1.9	14.1 ± 2.2	a 15.4 ± 2.3	a 18.4 ± 3.4
over 1050	.	11.0 ± 1.9	12.7 ± 1.9	13.8 ± 2.2	14.1 ± 1.9	b 14.9 ± 2.1	b 18.4 ± 3.6

Signifikace - α,β,δ... < 0,001; A,B,C... < 0,01; a,b.. < 0,05; x - mean, SD - standard deviation



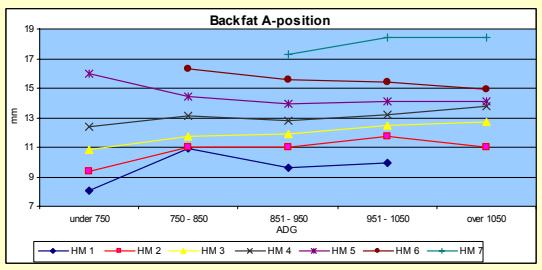


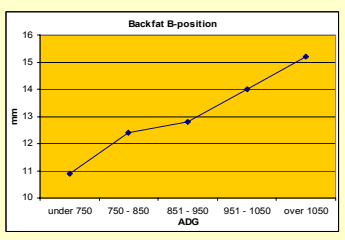
Table 3.a. The influence of growth intensity on selected parameters of carcass value without respect to weight categories - backfat in B-position

ADG (g/day)	Backfat A-pos. (mm) x ± SD
under 750	10.9 ± 1.8
750 - 850	12.4 ± 2.5
851 - 950	12.8 ± 2.7
951 - 1050	14.0 ± 2.6
over 1050	15.2 ± 2.9

Table 3.b. The influence of growth intensity on selected parameters of carcass value with respect to weight categories backfat in B-position

ADG (g/day)	HM 1 x ± SD	HM 2 x ± SD	HM 3 x ± SD	HM 4 x ± SD	HM 5 x ± SD	HM 6 x ± SD	HM 7 x ± SD
under 750	9.0 ± 1.2	10.7 ± 1.5	10.9 ± 1.2	11.4 ± 1.2	13.4 ± 1.0	.	.
750 - 850	10.7 ± 1.5	10.7 ± 1.7	11.7 ± 1.7	A 12.5 ± 2.2	a 13.4 ± 2.3	14.8 ± 3.2	.
851 - 950	10.4 ± 2.2	10.7 ± 1.7	a 11.5 ± 1.9	B 12.4 ± 1.9	b 13.5 ± 2.4	14.6 ± 2.9	α,β 14.9 ± 2.5
951 - 1050	10.9 ± 2.8	10.9 ± 1.2	12.0 ± 1.8	12.8 ± 1.7	13.8 ± 1.8	15.1 ± 2.0	α,γ 16.2 ± 2.7
over 1050	.	11.6 ± 2.0	a 12.6 ± 1.8	A,B 13.7 ± 1.9	a,b 14.5 ± 1.7	15.4 ± 1.8	β,γ 17.9 ± 2.4

Signifikace - α,β,δ... < 0,001; A,B,C... < 0,01; a,b.. < 0,05; x - mean, SD - standard deviation



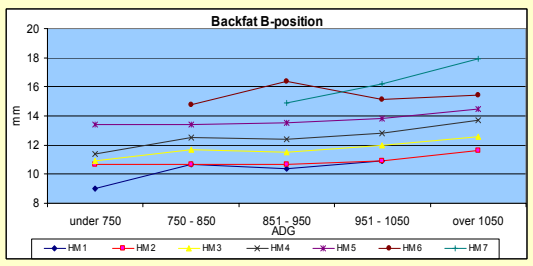


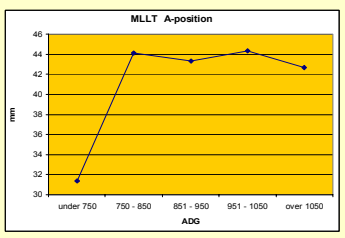
Table 2.a. The influence of growth intensity on selected parameters of carcass value without respect to weight categories - MLLT in A-position

ADG (g/day)	MLLT A-pos. (mm) x ± SD
under 750	31.4 ± 2.2
750 - 850	44.1 ± 4.7
851 - 950	43.3 ± 5.3
951 - 1050	44.3 ± 6.2
over 1050	42.7 ± 6.0

Table 2.b. The influence of growth intensity on selected parameters of carcass value with respect to weight categories MLLT in A-position

ADG (g/day)	HM 1 x ± SD	HM 2 x ± SD	HM 3 x ± SD	HM 4 x ± SD	HM 5 x ± SD	HM 6 x ± SD	HM 7 x ± SD
under 750	a 29.7 ± 0.6	α, A 31.3 ± 0.4	a,b 34.1 ± 2.0	.	.	.	.
750 - 850	a 39.1 ± 0.8	α,β,δ 42.8 ± 4.9	α, a,c 42.5 ± 4.2	α, A, a 44.3 ±3.9	a 45.5 ± 4.7	46.6 ± 5.0	.
851 - 950	35.8 ± 2.6	γ, A,B 40.5 ± 4.1	c,d 40.2 ± 4.1	a, b 41.9 ± 4.0	b 44.7 ± 4.8	46.6 ± 4.9	48.9 ± 4.5
951 - 1050	37.8 ± 1.2	β,γ 35.6 ± 5.1	A, b 41.2 ± 5.8	A 41.5 ± 4.9	43.9 ± 4.7	46.6 ± 5.1	a 49.1 ± 5.1
over 1050	.	δ,B 35.3 ± 4.5	α, A, d 37.6 ± 4.2	α, b 39.6 ± 4.3	a, b 42.4 ± 4.9	44.5 ± 4.9	a 47.2 ± 4.6

Signifikace - α,β,δ... < 0,001; A,B,C... < 0,01; a,b.. < 0,05; x - mean, SD - standard deviation



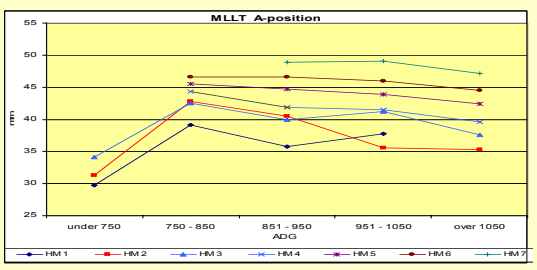


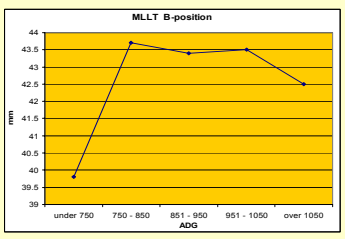
Table 4.a. The influence of growth intensity on selected parameters of carcass value without respect to weight categories - MLLT in B-position

ADG (g/day)	MLLT A-pos. (mm) x ± SD
under 750	39.8 ± 6.4
750 - 850	43.7 ± 5.6
851 - 950	43.4 ± 5.9
951 - 1050	43.5 ± 5.7
over 1050	42.5 ± 5.8

Table 4.b. The influence of growth intensity on selected parameters of carcass value with respect to weight categories MLLT in B-position

ADG (g/day)	HM 1 x ± SD	HM 2 x ± SD	HM 3 x ± SD	HM 4 x ± SD	HM 5 x ± SD	HM 6 x ± SD	HM 7 x ± SD
under 750	32.8 ± 3.0	35.8 ± 2.4	A,a 41.6 ± 5.4	44.5 ± 2.5	A,a 47.3 ± 3.4	.	.
750 - 850	35.6 ± 4.4	α,A,a 38.9 ± 3.5	α,β,δ 41.3 ± 4.0	α,β,a 44.5 ± 4.3	α,β,δ 47.8 ± 4.1	α,A 48.7 ± 4.6	.
851 - 950	33.9 ± 2.5	a 37.3 ± 3.6	α,B 39.2 ± 4.0	δ,γ,a 42.7 ± 4.5	α,ε,γ 45.4 ± 4.0	β,B 48.2 ± 3.9	a 50.5 ± 4.0
951 - 1050	35.9 ± 4.2	α 35.5 ± 2.2	β,a,b 38.2 ± 3.3	α,δ,b 40.5 ± 3.8	β,ε,a,b 42.7 ± 4.0	A,B,a 46.5 ± 3.5	49.5 ± 3.7
over 1050	.	A 35.2 ± 1.6	δ,A,B,b 36.2 ± 2.7	β,γ,b 38.3 ± 2.4	δ,γ,A,b 40.8 ± 3.1	α,β,a 44.4 ± 2.8	a 48.8 ± 3.5

Signifikace - α,β,δ... < 0,001; A,B,C... < 0,01; a,b.. < 0,05; x - mean, SD - standard deviation



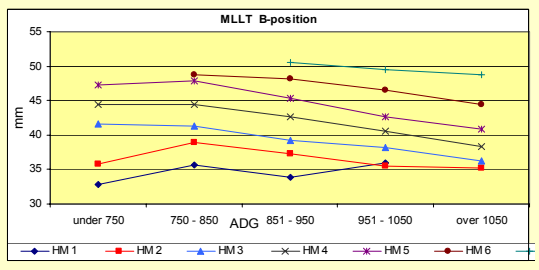


Table 5.a. The influence of growth intensity on selected parameters of carcass value without respect to weight categories - Lean meat share

ADG (g/day)	MLLT A-pos. (mm) x ± SD
under 750	58.5 ± 1.7
750 - 850	57.3 ± 2.2
851 - 950	56.9 ± 2.3
951 - 1050	55.7 ± 2.3
over 1050	54.8 ± 2.5

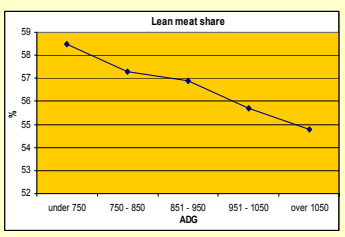


Table 5.b. The influence of growth intensity on selected parameters of carcass value with respect to weight categories Lean meat share

ADG (g/day)	HM 1 x ± SD	HM 2 x ± SD	HM 3 x ± SD	HM 4 x ± SD	HM 5 x ± SD	HM 6 x ± SD	HM 7 x ± SD
under 750	59.9 ± 0.8	58.8 ± 1.3	α,B,a 58.8 ± 1.3	a 58.2 ± 0.6	56.0 ± 1.8	.	.
750 - 850	58.1 ± 2.1	58.5 ± 1.6	C 58.0 ± 1.6	α,A 57.4 ± 2.0	A,a 56.7 ± 2.3	55.3 ± 2.9	.
851 - 950	58.6 ± 2.1	58.3 ± 1.4	b 57.7 ± 1.7	β,B 57.3 ± 1.8	B,b 56.6 ± 2.2	55.6 ± 2.5	α,β 55.0 ± 2.5
951 - 1050	58.5 ± 1.5	57.6 ± 1.1	A,C,a,b 57.1 ± 1.3	A,B,b 56.6 ± 1.4	a,b 56.0 ± 1.5	55.3 ± 1.7	α,A 53.7 ± 2.8
over 1050	.	57.6 ± 1.8	α,A,B 56.4 ± 1.5	α,β,a,b 55.6 ± 1.7	A,B 55.4 ± 1.7	55.0 ± 1.7	β,A 52.7 ± 2.5

Signifikace - α,β,δ... < 0,001; A,B,C... < 0,01; a,b.. < 0,05; x - mean, SD - standard deviation