PRODUCTION POTENTIAL OF THE SELECTED GENOTYPES IN PIGS

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Verification of the genotype impact on production performance in pigs used in the production herds in the Czech Republic is the objective of the trial. The trial tests were carried out with 576 final hybrid pigs at the average age 60–84 days from their birth and of a total average live weight 21.8–27.9 kg. In particular, the genotypes were LW_s, D, PN, (LW_s x BL), (PN x D), (PN x H) x (LW_d x L), Seghers and PIC where basic fattening capacity parameters and carcass values were evaluated under the standardised conditions. On the basis of the obtained results it may be stated that in respect of fattening capacity the monitored and evaluated genotypes show highly provable differences in growth intensity. The monitored genotypes demonstrate the highest growth potential at the age of approximately 130 days as well as that they do not prove/show the feed intake and feed conversion according to the recommended standards. Regarding the progress of meat-formation one could say that all genotypes show significant statistic at differences among each other with a higher or a lower linear drop of meat percentage. It is also obvious, that genotypes may be divided into those groups which show high degree of meatiness in higher slaughter weights exceeding 110 kg [LW_s, D, (LW_s x BL) x (LW_d x L) and Seghers], and genotypes that reach only the required meat percentage only up to 105 kg [PN, (PN x D), (PN x H), (LW_d x L) and PIC].

hybrid pigs; production potential; fattening capacity; carcass value; genotypes; population tests; station tests

INTRODUCTION

The Czech Republic belongs among developed countries in Europe from the breeding points of view due to its territorial diversification, eating habits, breeding, hybridization etc. Though the last decade of pig breeding reflected in significant reductions in the number of pig population and thereby end of existence of some farms, it is evident that the further phase of pig breeding will be even more complicated for our breeders. There logically must be an increase in the efficiency (as costs per production unit continuously grow) which will require meeting of many new measures related to accession to the European Union.

Apart from the field of reproduction, where requirements related to competitiveness of an enterprise are 21 and more reared piglets per sow and year regardless the genotype (Čeřovský, 1997), then in the field of production selection of genotype based upon the tests of the populations means a decisive factor which principally influences production features, i.e. the fattening rate from the intensity of growth points of view and carcass value, especially the process of lean meat formation in relation to the slaughter weight (Russo, 1988; Hovorka, 1989).

Determination of better populations upon their divergences is the principle of pig testing. The populations shall be defined, evaluated features shall be specified and adequate methods ensuring optimum data collection processing and analyses shall be chosen.

Getting as the largest as possible volume of objective information about the tested populations upon the following factors is the objective of the tests:
- comparison of various genotypes with other groups of animals,
- comparison of one genotype with other in all relevant efficiency indicators,
- verification of hybridization programs effectiveness aimed at initiation of competition among the breeders focused on maximizing the progress in breeding (Šprysl et al., 2000).

At present, in the Czech Republic tests of pig populations can be ordered and conducted at the station of the Central Institute for Supervising and Testing in Agriculture as a "test of an article" of foreign genotypes, in commercial breeds as "field tests" of hybrid pigs (Šprysl et al., 1988) and in "The Super-standard Testing and Trial Station of Pigs of the Czech University of Agricultural".

MATERIAL AND METHODS

Effect of genotype on production performance, i.e. fattening capacity and carcass value in pigs used in the Czech Republic in the production herds was the objective of the carried out test.

The tests included 576 hybrid pigs at the average age of 60–84 days (since their birth) and an average live weight 21.8–27.9 kg.

During 1999–2003 period the 8 recommended crossings were tested for basic parameters of fattening capacity as well as carcass value appreciation. The genotypes used were LW_s x (LW_d x L), D x (LW_d x L), PN x (LW_d x L), (LW_s x BL) x (LW_d x L), (PN x D) x (LW_d x L), (PN x H) x (LW_d x L), Seghers and PIC.

72 animals, in particular 36 barows + 36 gilts, were taken into the testing station from each genotype for the purposes of monitoring their fattening capacity, growth abilities and carcass values. Their housing was in compliance with the testing methodology of pure-bred and hybrid pig-housing, so that the principle of housing the animals by couples in a pen was observed and the pigs were regularly weighted in 7 days' intervals.

Monitoring system of AGE České Meziříčí assuring forced air circulation in relation to current temperature and humidity was to assure standardized conditions of the environment in the stations (Martínek, 2003).

All pigs were penned in pairs (barrow/gilt) according to the testing methodology of pure and hybrid-bred pigs.

The feeding was carried out ad-libitum according to the Šimeček et al. (2000) standard by the help of Duräumat self-feeders in the three smooth to conversion phases where the feed-mixtures (CFM) were fattened according to the followed receptures and figures.

Nutrient content	Feeding period		
	< 35 kg	35–65 kg	> 65 kg
Crude protein (g/kg)	196.70	184.00	156.30
MEp (MJ/kg)	13.30	13.20	12.90
Fibre (g/kg)	39.84	38.76	40.75
LYZ (g/kg)	11.40	10.20	8.30
THRE (g/kg)	7.20	6.50	5.40
MET (g/kg)	3.20	2.90	2.40
Ca (g/kg)	7.20	6.80	6.10
P (g/kg)	5.50	5.40	4.60

For evaluation of fattening and growing performance all pigs were weighted regularly weekly where following traits were monitored:

- average live weight (ALW) in kg,
- feeding conversion ratio (FCR) in kg,
- daily feed intake (DFI) in kg,
- average daily weight gain (ADG) in g.

For lean meat share determination in the carcass all pigs were periodically measured by the sonography instrument ALOCA SSD 500 – MIKRUS from about 65 kg live weight. The lean meat share of pigs was evaluated by the help of FOM-formula.

The following was implemented to provide an objective analysis of fattening features and carcass value in the set

- analysis of selected fattening indicators with a view to the genotype converted to an uniform age,
- analysis of meat percentage in carcass body with a view to the genotype converted to an uniform age.

To compare the production trial of tested genotypes the linear model with fixed effects was used (Jakubec, 1990):

$$y_j = \mu + a_j + e_j$$

where: y_j – observed variable
μ – population average
a_j – effect of j-th genotype (combination)
e_j – residual error

The test results were evaluated by SAS Propriety Software Release 6.04 statistical program, expressed in charts and graphs, while differences among the individual evaluated features were tested by single and multiple analysis of variance.

Legend: LW – Large White, L – Landrace, D – Duroc, PN – Pietrain, BL – Belgian Landrace, H – Hampshire, PIC – Pig Improvement Co.

RESULTS AND DISCUSSION

To compare and evaluate the studied production features objectively, i.e. the fattening features among the individual genotypes within the monitored intervals and their course during the testing period, the real phenotype values of the individual evaluated features were converted to a common and uniform age of 75 days by the start of the test. These are then presented in Tables 1–4 and also in Figs 1–4.

Evaluation of live weight in pigs is listed in Table 1 and Fig. 1. It is obvious that practically no individual pig complied with the recommended growth optimum because of evaluation of the initial weight in pigs in relation to their age from birth, which shall be according to Guyokrma (1994) in the interval between 29 and 38 kg of live weight for pigs of 75 days of age. This fact is an evidence of existence of problems in the weaning section in the sphere of commercial herds. The lowest weight in the start of the test 12.9, or as the case may be, 18.7 kg was shown by hybrid-combinations of D x (LW_d x L), LW_s x (LW_d x L) contradictorily to these pigs of (PN x D) x (LW_d x L) genotype got very close to the recommended weight interval, as their starting weight was equal to 27.0 kg.

It is obvious from the course of the following growth that the evaluated genotypes very soon, due to the standard environment in the station, had overcome the handicap within approximately four weeks, while in the end of the test (at 173 days of age) their weight corresponded to the recommended interval. As it is shown in Table and graph 1, the evaluated combinations got very close to the upper recommended limit with an exception of PIC genotype, (LW_s x BL) x (LW_d x L) and (PN x H) x (LW_d x L), the growth intensity of which was the highest within the tests and they copied, or as the case may be, even exceeded in their level this recommended limit. These results may be evaluated very satisfactorily from this point of view. Table 1 also presents provable differences ($P < 0.001$) in live weights, or as the case may be, the growth among the individual genotypes, which represents an-

Table 1. Survey of fattening capacity with respect to genotype after conversion to uniform age – average live weight – ALW (kg)

Age (days)	ALW (kg)							
	LW_s x (LW_d x L)	D x (LW_d x L)	PN x (LW_d x L)	(LW_s x BL) x (LW_d x L)	(PN x D) x (LW_d x L)	(PN x H) x (LW_d x L)	Seghers	PIC
	KLBb	HIJAa	GJQa	NOD	PEHKNc	QFILMOP	ABCDEFG	MCbc
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
75	18.7	12.9	22.4	25.5	27.0	21.3	24.6	25.8
82	25.1	19.4	29.2	32.6	34.1	26.6	30.1	33.6
89	31.6	25.9	35.8	39.5	41.0	32.1	35.7	41.3
96	37.9	32.6	42.4	46.3	47.7	37.7	41.4	49.0
103	44.3	39.3	48.8	52.9	54.2	43.5	47.1	56.5
110	50.6	46.1	55.2	59.4	60.6	49.4	52.8	64.0
117	56.9	52.9	61.4	65.8	66.7	55.6	58.6	71.4
124	63.1	59.8	67.6	72.1	72.7	61.9	64.5	78.7
131	69.4	66.7	73.6	78.2	78.5	68.3	70.4	85.9
138	75.5	73.7	79.5	84.2	84.2	74.9	76.4	93.0
145	81.7	80.8	85.4	90.1	89.6	81.7	82.5	100.1
152	87.8	87.9	91.1	95.8	94.9	88.7	88.5	107.0
159	93.8	95.1	96.7	101.5	100.0	95.8	94.7	113.9
166	99.8	102.4	102.3	106.9	104.9	103.0	100.9	120.7
173	105.8	109.7	107.7	112.3	109.6	110.5	107.2	127.4

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

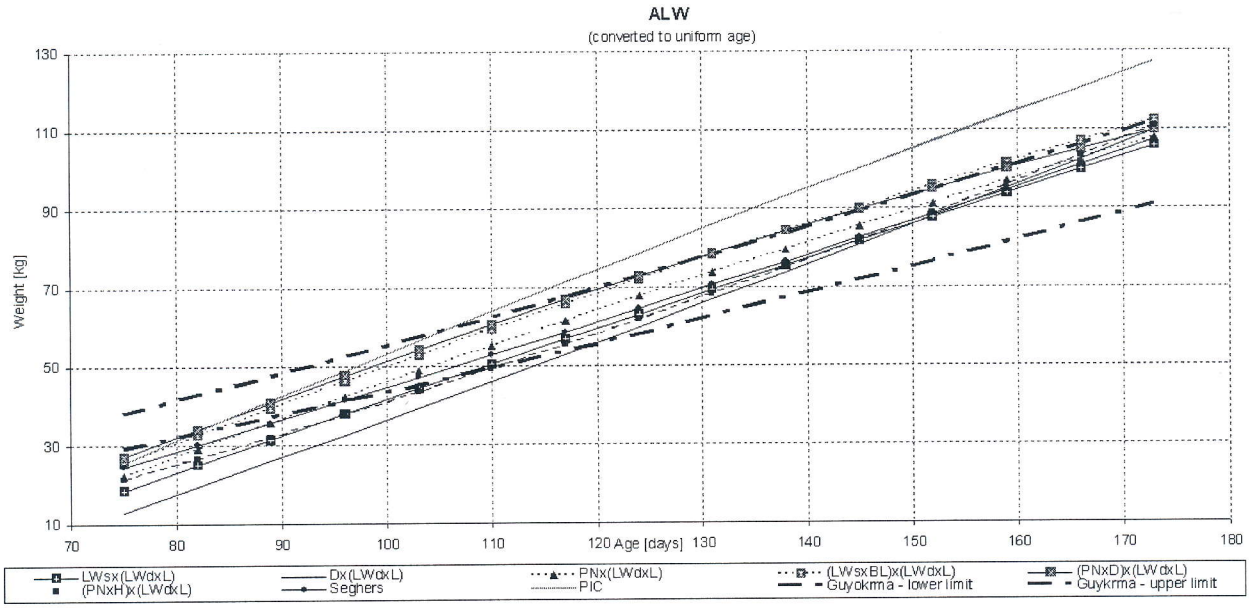

Fig. 1. Assessment of the fattening capacity in relation to genotype

other important guideline for the breeders in selection and subsequent realization of the evaluated genotypes in their breeds.

Evaluation of average daily gain in pigs is listed in Table 2 and Fig. 2.

Out of the achieved values of gains it is obvious that maximum growth (approximately 1000 g/day) was in genotypes of D x (LW_d x L), LW_s x (LW_d x L), (PN x H) x (LW_d x L), Seghers and PIC reached at the age 130–140 days, i.e. by twenty days sooner than presented in the standard. There is then a steep fall below the recommended value in further period, especially in pig of hybrid combination LW_s x (LW_d x L), (PN x H) x (LW_d x L) and company product Seghers.

As regards the other evaluated genotypes, then PN x (LW_d x L), or as the case may be, (LW_s x BL) x (LW_d x L) manifests its growth potential sooner, approximately at the age of 100–115 days. The genotype (PN x D) x (LW_d x L) shows its highest growth intensity practically exclusively at the beginning of the test. It is also obvious

Table 2. Survey of fattening capacity with respect to genotype after conversion to uniform age – average daily gain – ADG (g)

Age (days)	ADG (g/day)							
	LW_s x (LW_d x L)	D x (LW_d x L)	PN x (LW_d x L)	(LW_s x BL) x (LW_d x L)	(PN x D) x (LW_d x L)	(PN x H) x (LW_d x L)	Seghers	PIC
	MBH	HIJKLA	GLQ	RDIN	EJOR	FKP	ABCDEFG	NOPQCM
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
75	588	527	753	908	937	439	507	846
82	667	630	808	924	929	551	601	907
89	736	721	852	935	920	651	683	958
96	794	801	886	941	910	736	752	1001
103	842	870	909	943	899	809	809	1035
110	879	927	922	940	886	868	854	1059
117	905	973	925	932	872	913	886	1075
124	921	1007	917	920	857	945	906	1081
131	926	1030	899	902	840	964	913	1079
138	920	1041	871	881	822	970	908	1067
145	904	1041	832	854	803	962	890	1046
152	877	1030	783	823	783	941	861	1017
159	840	1007	723	787	761	906	818	978
166	792	973	653	746	738	858	763	930
173	733	927	573	701	713	797	696	873

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

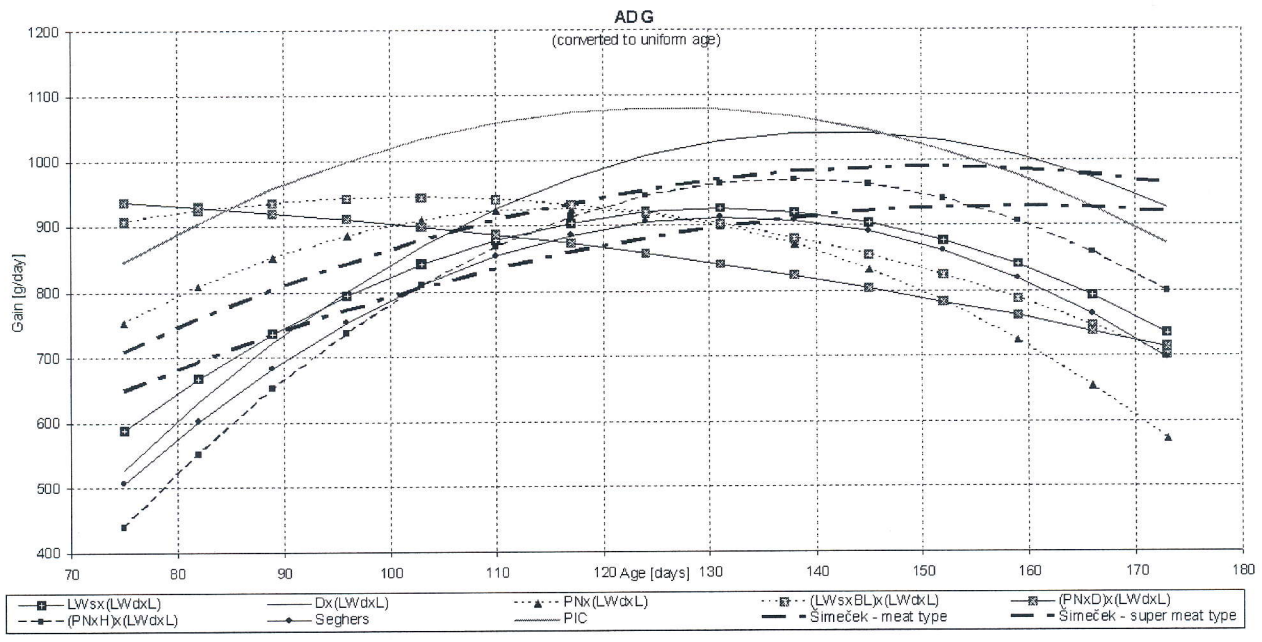

Fig. 2. Assessment of the fattening capacity in relation to genotype

here that there is a significant decrease in growth intensity below the recommended standard in the evaluated genotypes. The fact is the evidence that most present hybrid combinations of pigs used in the production sphere manifest their high growth potential in the period of approximately 130 days of age. Most combinations like (PN x D) x (LW_d x L), PIC, (LW_s x BL) x (LW_d x L), PN x (LW_d x L) showed gains in an interval between 750 and 940 g at 75 days of age already, which should be fully utilized within the ad-libidum feeding in pig fattening process as it is exemplified by Bučko et al. (2001) and others.

Significant variability of the individual genotypes is also supported by proven statistically significant differences, while this fact plays an important role in selection and using of possible and existing genotypes. It is also obvious that sooner or later the recommended standard (Šimeček et al., 2000) would have to be revised and optimized upon the carried out station tests.

Table 3. Survey of fattening capacity with respect to genotype after conversion to uniform age – daily feed intake – DFI (kg)

Age (days)	DFI (kg CFM/day)							
	LW_s x (LW_d x L)	D x (LW_d x L)	PN x (LW_d x L)	(LW_s x BL) x (LW_d x L)	(PN x D) x (LW_d x L)	(PN x H) x (LW_d x L)	Seghers	PIC
	ABCDEFG	HIJKLAa	MNOBH	PQRSCIM	TUDJNP	VEKQT	WFLRU	GOSVWa
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
75	0.9	0.5	1.4	1.3	1.6	0.7	1.0	1.5
82	1.2	0.8	1.7	1.6	1.8	1.1	1.3	1.9
89	1.4	1.2	1.9	1.9	2.0	1.4	1.5	2.2
96	1.7	1.5	2.1	2.1	2.2	1.8	1.8	2.6
103	1.9	1.8	2.3	2.3	2.3	2.0	2.0	2.8
110	2.1	2.1	2.5	2.5	2.5	2.3	2.2	3.1
131	2.6	2.7	2.8	2.9	2.8	2.9	2.6	3.5
138	2.7	2.9	2.9	2.9	2.9	3.0	2.7	3.6
145	2.8	3.0	3.0	3.0	2.9	3.1	2.8	3.6
152	2.9	3.2	3.0	3.0	2.9	3.2	2.8	3.6
159	2.9	3.2	3.0	2.9	3.0	3.2	2.9	3.5
166	2.9	3.3	2.9	2.8	3.0	3.2	2.9	3.4
173	2.9	3.4	2.9	2.7	2.9	3.2	2.9	3.3

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

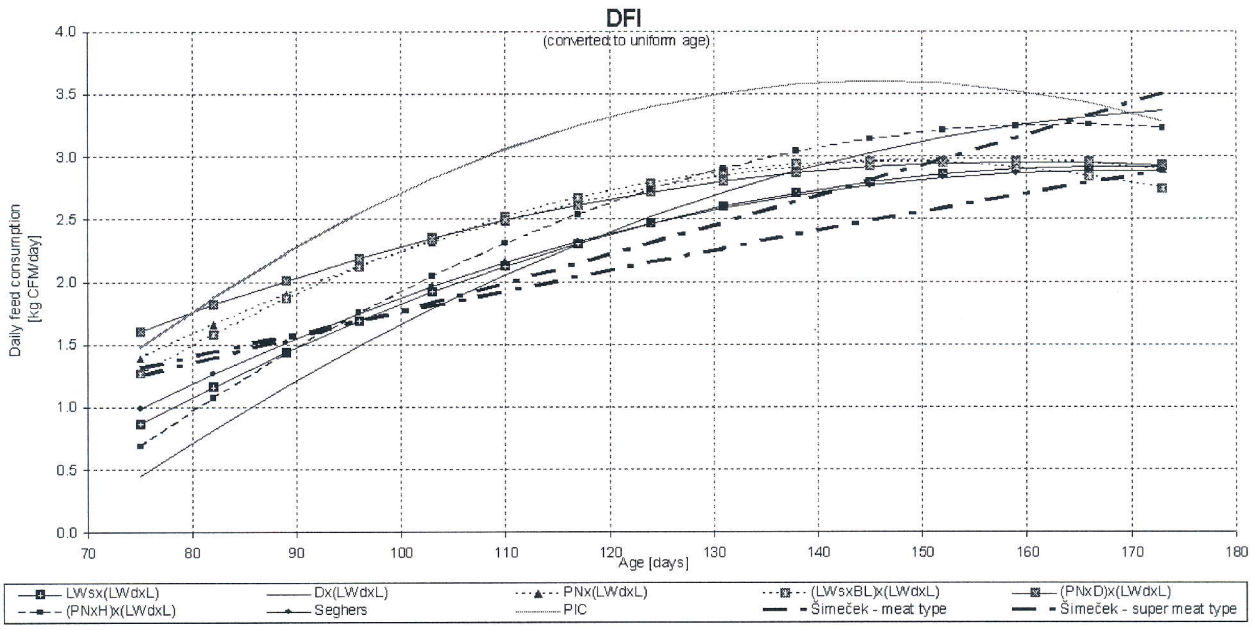

Fig. 3. Assessment of the fattening capacity in relation to genotype

Table 3 and Fig. 3 evaluate the course of the daily feed intake, or as the case may be appetite of the individual pig combinations.

As it is obvious the monitored/evaluated genotypes do not show linear course, as the standard recommends. At the same time they show statistically provable differences among each other. Also as obvious out of the chart and graph presented above, within ad-libidum intake of feed, genotypes like PIC, PN x (LW_d x L), (LW_s x BL) x (LW_d x L) and (PN x D) x (LW_d x L), show the daily intake of feed above the recommended optimum, in particular during the whole period of fattening, which stagnates from approximately 150 days of age and then gradually drops. Other hybrid combinations, i.e. D x (LW_d x L), LW_s x (LW_d x L), (PN x H) x (LW_d x L) and Seghers, showed lower appetite in comparison with the standard approximately until 100 days of age. This was probably caused by their lower starting weight. It may also be stated that with an exception of PIC pigs, D x (LW_m x L) and (PN x H) x (LW_m x L) the daily intake during the test in other genotypes did not exceed 3 kg/day in the end of the test.

Table 4. Survey of fattening capacity with respect to genotype after conversion to uniform age – feed consumption ratio – FCR (kg)

Age (days)	FCR (kg CFM/kg gain)							
	LW_s x (LW_d x L)	D x (LW_d x L)	PN x (LW_d x L)	(LW_s x BL) x (LW_d x L)	(PN x D) x (LW_d x L)	(PN x H) x (LW_d x L)	Seghers	PIC
	ABCDE	FGHIJ	KAFa	BGb	CHa	DIc	Kbc	EJ
	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$	$\bar{x}$
89	2.0	1.6	2.2	2.0	2.2	2.2	2.2	2.3
96	2.1	1.9	2.4	2.2	2.4	2.4	2.3	2.6
103	2.3	2.0	2.5	2.5	2.6	2.5	2.4	2.7
110	2.4	2.2	2.7	2.7	2.8	2.7	2.5	2.9
117	2.5	2.4	2.8	2.9	3.0	2.8	2.6	3.0
124	2.7	2.5	3.0	3.0	3.2	2.9	2.7	3.1
131	2.8	2.6	3.2	3.2	3.3	3.0	2.8	3.3
138	2.9	2.8	3.3	3.3	3.5	3.1	3.0	3.4
145	3.1	2.9	3.6	3.5	3.6	3.3	3.1	3.4
152	3.3	3.1	3.8	3.6	3.8	3.4	3.3	3.5
159	3.5	3.2	4.1	3.7	3.9	3.6	3.5	3.6
166	3.7	3.4	4.5	3.8	4.0	3.8	3.8	3.7
173	4.0	3.6	5.0	3.9	4.1	4.0	4.1	3.8

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

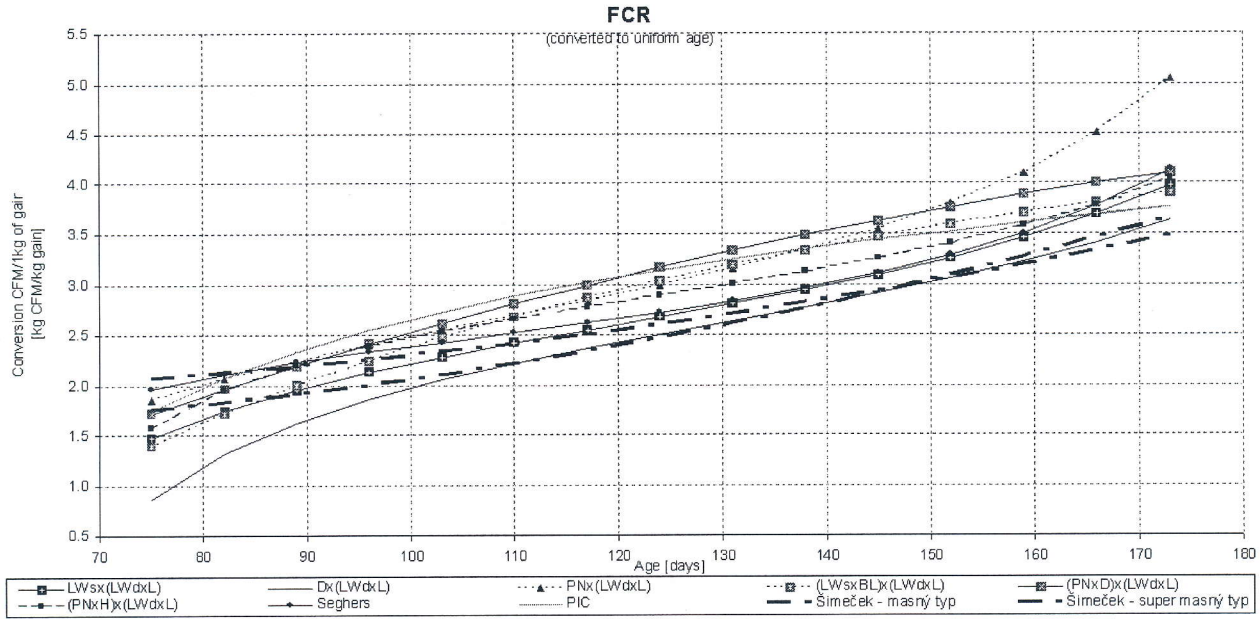

Fig. 4. Assessment of the fattening capacity in relation to genotype

Table 4 and Fig. 4 evaluate the course of feed conversion in the evaluated hybrid combinations of crossbreeding.

It may be stated that with an exception of D x (LW_d x L) the other genotypes fluctuate above the standard for super-meat commercial type since 85 days of age (Šimeček et al., 2000), while in this feature genotypes of pure-bred and hybrid Pietrain boars in C-position showed to be the worst (Hovorka et al., 1981).

The above mentioned conclusions confirm the achieved statistically highly provable significances in differences among the individual evaluated combinations. It is also obvious that conversion in all monitored and evaluated combinations of crossbreeding does not exceed 3 kg KKS/1 kg of live weight gain until the mid-period of the test, i.e. approximately 120 days of age, which is the evidence of lower feed intake in ad-libidum technique of feeding or higher growth intensity of the present pig genotypes.

With a view to the fact that the table and graphs presented above contain converted values, from which differences of the course of the individual fattening features

Table 5. The final survey of average fattening values with respect to uniform duration of test (test duration – 91 days)

Genotype	ADG (g/day)		DFI (kg CFM/day)		FCR (kg CFM/kg gain)	
	$\bar{x} \pm s_{\bar{x}}$	s	$\bar{x} \pm s_{\bar{x}}$	s	$\bar{x} \pm s_{\bar{x}}$	s
LW_s x (LW_d x L)	868.62 ^{IC} ± 100.88	12.14	2.49 ^{IJKLMG} ± 0.36	0.04	2.88 ^{LMNOPF} ± 0.31	0.04
D x (LW_d x L)	983.54 ^{CDEFGHA} ± 88.40	10.49	2.70 ^{GHA} ± 0.29	0.03	2.75 ^{FGHIJKA} ± 0.21	0.02
PN x (LW_d x L)	836.09 ^{HMOQ} ± 61.39	10.69	2.72 ^{FMQ} ± 0.16	0.03	3.26 ^{EKPR} ± 0.23	0.04
(LW_s x BL) x (LW_d x L)	891.07 ^{NOEJa} ± 97.04	11.52	2.69 ^{CJN} ± 0.23	0.03	3.04 ^{QRHM} ± 0.26	0.03
(PN x D) x (LW_d x L)	849.67 ^{PFKN} ± 73.49	9.05	2.70 ^{DKO} ± 0.18	0.02	3.20 ^{CINQ} ± 0.30	0.04
(PN x H) x (LW_d x L)	900.74 ^{QGLPb} ± 107.02	18.09	2.77 ^{ELP} ± 0.29	0.05	3.10 ^{DJO} ± 0.35	0.06
Seghers	854.44 ^{ABab} ± 84.94	14.16	2.47 ^{ABCDEF} ± 0.17	0.03	2.91 ^{ABCDE} ± 0.30	0.05
PIC	1049.21 ^{JKLMBDI} ± 101.10	16.85	3.25 ^{NOPQBHI} ± 0.27	0.05	3.11 ^{BGL} ± 0.29	0.05

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

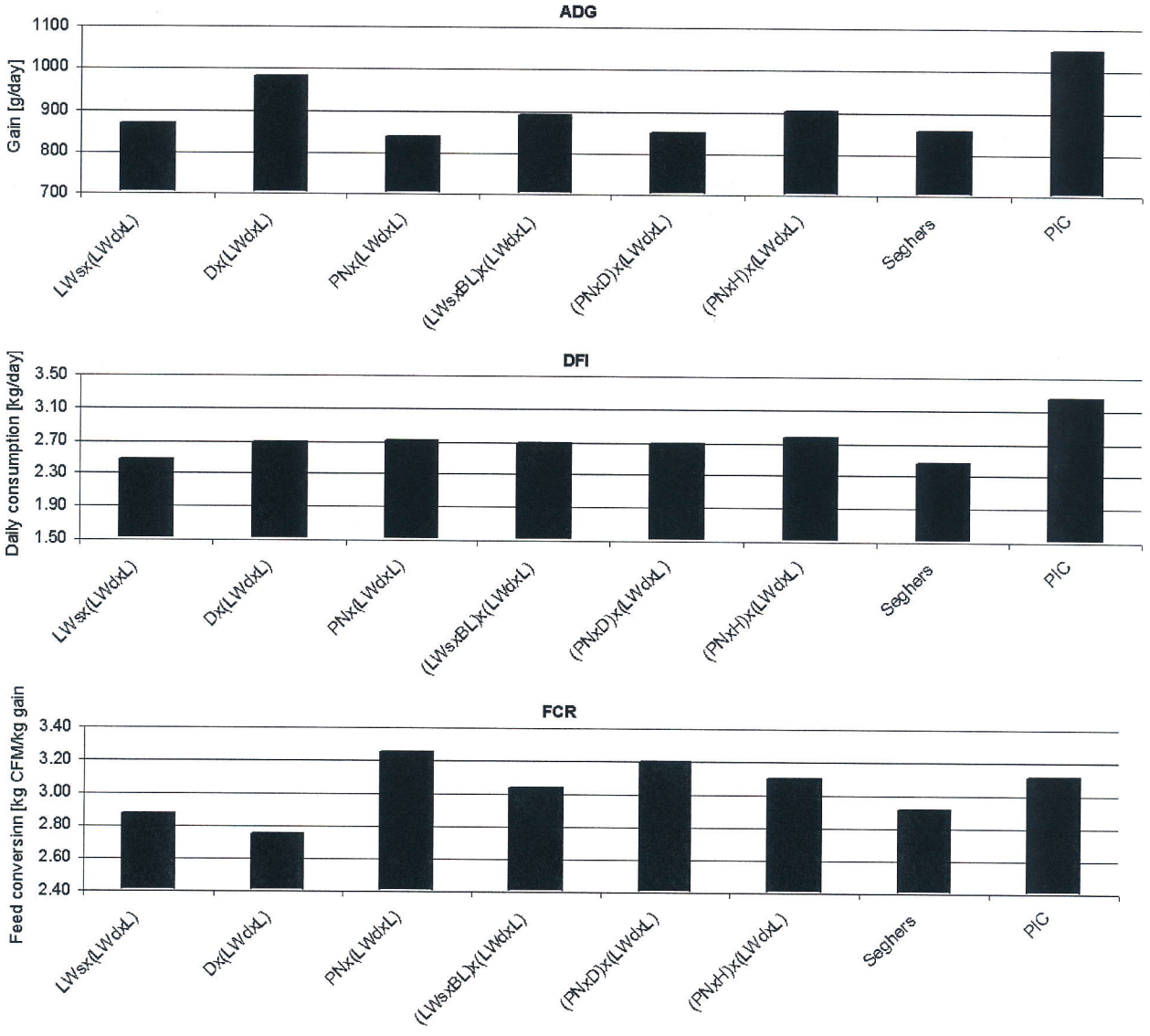

Fig. 5. Total fattening capacity in relation to genotype in pigs

can be compared, but no final order of advantageousness of the evaluated genotypes can be determined, evaluation of average phenotype values of fattening features for a particular period of fattening that was identical for all tests (which was represented by the 91st day of test) in the final part of this work was used. This final evaluation is provided in the final summary (Table 5, Fig. 5).

It is obvious out of the table and graph listed above that a company product PIC seems unilaterally to be the genotype with the highest intensity of growth reaching

the gain for the period of the test equal to 1049 g and then D x (LW_d x L), the growth intensity of which reached (on the lowest starting weight) 984 g, i.e. 94% of PIC. The lowest growth intensity reaching the level of 80% PIC, was showed by combinations of PN x (LW_d x L), (PN x D) x (LW_d x L) and Seghers.

If evaluating the daily feed consumption, it fluctuates about the level of 2.7 kg in most of the evaluated genotypes. A company product PIC is an exception as it shows 120% of appetite of the others, and then the lowest appetite on an approximate level of 91% was proved in genotypes of LW_s x (LW_d x L) and Seghers (2.5 kg).

As regards evaluation of feed conversion in the evaluated genotypes, then D x (LW_d x L) pigs unilaterally seem to be the best in respect of their economic efficiency as their conversion is equal to 2.75 kg. To these combinations like LW_s x (LW_d x L) and Seghers may also belong among them as they reach conversion equal to 2.88 kg, or as the case may be, 2.91 kg. Genotypes using boars of PN breed in the sire position, both pure-bred and synthetic, are the opposites. An increase of the evaluated indicator by 13–18% was proved here in comparison to the genotype of D x (LW_d x L).

In final summary evaluation differences of the evaluated genotypes in fattening features it may be stated that statistically highly significant differences ($P < 0.001$) were proved practically among all genotypes within the evaluated features. Knowledge of these differences is important for selection of combinations for the commercial sphere as it may serve as a guideline to the breeder in their selection. In this respect as regards the advantageousness from the intensity of growth, feed intake and feed conversion points of view, the best genotype seems to be D x (LW_m x L), which reached a weight of 110 kg with the second best gain and daily intake of 2.7 kg and the lowest feed conversion. The proved fact is in compliance with conclusions of Sigvardsson and Andersson (1985), who came to similar conclusions. A three-breed combination using PN breed in C-position seems to be the worst, which is in compliance with the proved conclusions of Hovorka et al. (1978, 1981), Hovorka (1989) and Pavlík (1987).

With a view to introduction of SEUROP system the price-mask of which is based on the meat share and uniformity of the slaughter pig, the course and formation of meat share in pig bodies of the evaluated genotypes was monitored in the other part of the work.

Table 6. Survey of lean meat share formation with respect to the genotype in the carcass after conversion to uniform live weight

Weight (kg)	LM (%)			
	LW_s x (LW_d x L)	D x (LW_d x L)	PN x (LW_d x L)	(LW_s x BL) x (LW_d x L)
	Hicdea	Gab	Fme	CJc
65	61.0	61.2	60.5	59.4
70	60.6	60.6	60.0	59.2
75	60.1	60.1	59.4	58.9
80	59.6	59.6	58.8	58.7
85	59.1	59.1	58.2	58.4
90	58.5	58.5	57.5	58.0
95	58.0	58.0	56.8	57.7
100	57.4	57.4	56.1	57.2
105	56.8	56.7	55.4	56.8
110	56.2	56.0	54.7	56.2
Weight (kg)	LM (%)			
	(PN x D) x (LW_d x L)	(PN x H) x (LW_d x L)	Seghers	PIC
	DIKb	Eld	ABCDEFa	JKLMBGH
65	59.8	59.9	60.9	59.5
70	59.6	59.4	60.9	59.0
75	59.2	58.8	60.7	58.4
80	58.7	58.2	60.2	57.7
85	58.1	57.6	59.6	57.0
90	57.4	57.0	58.8	56.4
95	56.6	56.2	58.0	55.8
100	55.8	55.4	57.2	55.2
105	54.9	54.5	56.5	54.8
110	54.0	53.5	55.9	54.4

Diferences among means with the same type are statistically significant; $P < 0.001$ A, B, C, D,..., $P < 0.05$ a, b, c, d...

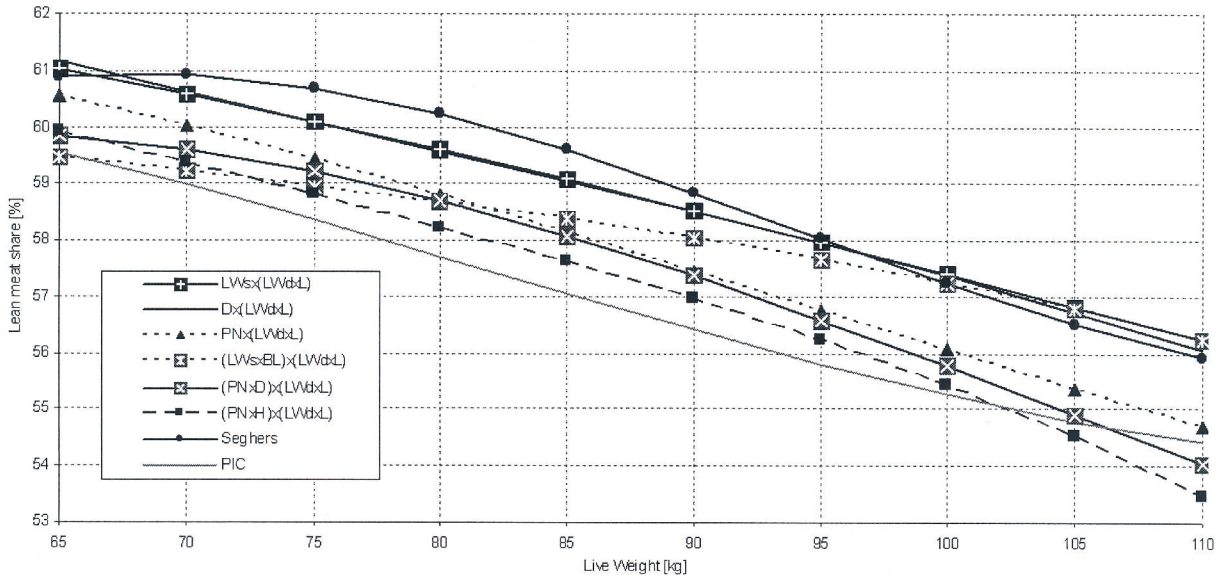

Fig. 6. Evaluation of lean meat share with respect to genotype

With a view to the fact that the pig carcass value features are influenced most by the live weight (Hovorka, 1983; Miller, 1985; Jakubec, 1990), phenotype values of the meat share were converted on a uniform weight with an interval of 5 kg, which is documented in Table 6 and Fig. 6.

In evaluation of meat formation it is obvious out of the presented values that there is a gradual almost linear decrease of meat share in all evaluated genotypes. In the average live weight of 65 kg the proven interval was equal to 59.5–61.2% of meat with a drop down to the level of 53.5–56.2%, corresponding to a live weight of 110 kg. As it is evident from the table significant differences regarding meat share formation in carcass body were proved among the monitored genotypes ($P < 0.001$, $P < 0.05$).

It was also confirmed that genotypes may be divided into combinations with a high share of meat at the beginning and in the end of the test, reaching the share of approximately 61%, or as the case may be 56% [D x (LW_d x L), LW_s x (LW_d x L), (LW_s x BL) x (LW_d x L), Seghers] and combinations showing a lower meat share reaching at the beginning, or as the case may be, in the end of the test 60%, or as the case may be 54–55% [PN x (LW_d x L), (PN x H) x (LW_d x L), (PN x D) x (LW_d x L), PIC].

It may be stated that if the first group reaches approximately 56% of meat share in carcass body in live weight of 110 kg, a weight lower by approximately 5 to 10 kg corresponds to this meat share in the second group. While fattening these genotypes up to higher weights the breeder shall be aware of higher fat formation at the expenses of a steeper decrease of meatiness and thereby worse financial yield while selling to slaughter houses. It is also evident that genotype of PIC does not reflect its high growth intensity in meat formation (Hovorka, 1989; Jakubec et al., 2002).

CONCLUSION

It may be stated out of the achieved results that in respect of

1. Fattening capacity
   - the evaluated genotypes show highly provable differences in growth intensity,
   - manifest their highest growth potential at the age of approximately 130 days,
   - do not show intake and feed conversion according to the recommended standards,
   - the genotypes of PIC and D x (LW_d x L) showed the highest intensity of growth, and genotypes of PN x (LW_d x L), (PN x D) x (LW_d x L) and Seghers showed the lowest intensity of growth.
2. Lean meat formation
   - they show significant statistical differences with higher or lower linear drop of meat share among each other
   - genotypes may be divided into those, which show high meatiness at the beginning and in the end of the fattening process [D x (LW_d x L), LW_s x (LW_d x L), (LW_s x BL) x (LW_d x L), Seghers], and genotypes that show lower share of meat in carcass body at the beginning and in the end of the fattening process, like PN x (LW_d x L), (PN x H) x (LW_d x L), (PN x D) x (LW_d x L), PIC.

Genotypes of D x (LW_d x L), Seghers, (LW_s x BL) x (LW_d x L) can be recommended for the commercial sphere as they show high meatiness in higher slaughter weights (over 110 kg of live weight). Slaughter weight of 105 kg of live weight may be recommended for other genotypes with a view to their financial yield.

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Produkční užitkovost vybraných genotypů prasat.

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Cílem práce bylo zjištění vlivu genotypu na produkční užitkovost prasat používaných v produkčních chovech České republiky.

Pokus se uskutečnil na 576 finálních hybridech prasat v průměrném věku 60–84 dní a o průměrné hmotnosti 21,8–27,9 kg. Jednalo se o genotypy (BU x L) x BO, D, PN, (BO x BL), (PN x D), (PN x H), Seghers a PIC, u kterých byly zjištěny v rámci staničních testů základní vlastnosti výkrmnosti a jatečné hodnoty.

Na podkladě zjištěných výsledků je možné konstatovat, že byla prokázána existence vysoce významných diferencí ve vlastnostech výkrmnosti mezi všemi genotypy. Prokázalo se, že sledované genotypy vykazují vysokou růstovou schopnost cca do 130 dní věku, přičemž současným genotypům prasat neodpovídají doporučované normy spotřeby a konverze krmiva. Pokud se týká hodnocení průběhu a tvorby masa v jatečně upraveném trupu, je zřejmé, že sledované genotypy vykazují mezi sebou významné rozdíly v poklesu podílu masa se stoupajícím věkem a hmotností zvířat. Je rovněž možné konstatovat, že sledované genotypy lze rozdělit na ty, které vykazují vysoký podíl masa v JUT nad 110 kg [(BU x L) x D, (BU x L) x BO, (BU x L) x (BO x BL), Seghers], a ty, jež vykazují 55% podíl masa pouze do hmotnosti 105 kg [(BU x L) x PN, (PN x D), (PN x H), PIC]. Jedná se o kombinace uplatňující v hybridizaci kance plemene pietrain, přičemž prasata těchto kombinací jsou ve vyšších porážkových hmotnostech za vrcholem růstové intenzity a zároveň vykazují nízký podíl svaloviny v JUT.

hybridi; produkční užitkovost; výkrmnost; jatečná hodnota; genotypy; testy populací; staniční testy

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