

THE RELATION BETWEEN INDIVIDUAL PARTS OF PIG CARCASS

J. Fiedler, J. Pulkrábek, J. Pavlík, L. Houška, J. Smital, T. Adamec

Summary

Progressive changes of pig type have caused the increase of percentage of some tissues while the share of other tissues have decreased.

From the selectin point of view it is useful to evaluate the relations between different characters. For instance Demo et al. (1995) observed these relations in crossbreds used for creation of lines of high lean meat percentage.

Presented paper describes relations between the characters, that were measured by means of detailed analysis of pig carcasses. Possibility of substitution of the complex analysis of the whole carcass body with analysis of only one or a few carcass parts and giving precision to procedures of analysis, was searched.

Progressive changes of pig type have caused the increase of percentage of some tissues while the share of other tissues have decreased.

From the selectin point of view it is useful to evaluate the relations between different characters. For instance Demo et al. (1995) observed these relations in crossbreds used for creation of lines of high lean meat percentage. Pulkrábek et al. (1994) and Pavlík (1991) were engaged in this field, too.

Presented paper describes relations between the characters, that were measured by means of detailed analysis of pig carcasses. Possibility of substitution of the complex analysis of the whole carcass body with analysis of only one or a few carcass parts and giving precision to procedures of analysis, was searched.

Paper presented at 46th Annual Meeting of the European Association for Animal Production 1995, Prague, Czech Republic

Jaromír Fiedler, Jan Pulkrábek, Jan Pavlík, Lubor Houška, Jaroslav Smital, Tomáš Adamec, Research Institute of Animal Production, 10400 Praha, Czech Republic

Material and method

The relations between individual body parts were evaluated. Firstly, the pig carcasses were divided into individual parts. Then these parts were detailed dissected according to different tissues, i.e. lean tissue, fat tissue, bones, skin and others (sinews, lymphatic nodes, veins, arteries etc.). Two sets, pigs of dam populations ($n = 87$) and pigs of sire populations ($n = 122$) were examined.

Results

Average weights of halfcarcasses (stated as a sum of individual parts) in dam and sire populations were 47.96 ± 0.513 kg and 46.19 ± 0.491 kg, resp.

Relations between the carcass parts are shown in table 1. They are very close and always negative between main body tissues, i.e. lean tissue and fat.

Table 1. - RELATIONS BETWEEN THE BODY COMPONENTS IN DAM AND SIRE POPULATIONS

Relations between	Dam populations	Sire populations
	r \pm SE	
fat	$-0.96^* \pm 0.030$	$-0.97^* \pm 0.022$
Lean tissue	bones	$0.53^* \pm 0.092$
	skin	0.18 ± 0.107
	other	$0.24^* \pm 0.105$
	bones	$-0.71^* \pm 0.076$
Fat	skin	$-0.34^* \pm 0.102$
	other	$-0.35^* \pm 0.102$
	skin	$0.41^* \pm 0.099$
Bones	other	$0.27^* \pm 0.104$
	other	0.07 ± 0.091
Skin	other	0.16 ± 0.107

+ $P \leq 0.05$

Very interesting are values of correlation coefficients between the main body components on the one hand and less frequent parts, i.e. bones, skin etc., on the other. The values of above mentioned relations were always positive if lean tissue participated on it. In the case of fat the values were negative and significant. From summary results, it's clear, the decrease of lean percentage, but undesirable increase of bones and skin, too.

Relations between the tissue percentage in the whole body and that one in individual body parts are given in table 2 and 3.

Table 2. - RELATIONS BETWEEN THE SHARE OF BODY COMPONENTS IN THE WHOLE BODY AND IN INDIVIDUAL BODY PARTS IN DAM AND SIRE POPULATIONS

Body part	Lean tissue		Fat tissue	
	Dam	Sire	Dam	Sire
	populations		populations	
	$r \pm SE$			
Sparerib	0.80' \pm 0.065	0.78' \pm 0.057	0.61' \pm 0.086	0.71' \pm 0.064
Loin	0.73 \pm 0.075	0.79' \pm 0.056	0.63' \pm 0.084	0.61' \pm 0.072
Shoulder	0.72' \pm 0.075	0.78' \pm 0.057	0.61' \pm 0.086	0.40' \pm 0.084
Ham	0.94' \pm 0.037	0.93' \pm 0.034	0.40' \pm 0.099	0.58' \pm 0.074
Belly	0.74' \pm 0.074	0.78' \pm 0.057	0.84' \pm 0.059	0.88' \pm 0.043
Trim	0.35' \pm 0.102	0.30' \pm 0.087	0.44' \pm 0.097	0.41' \pm 0.083
Backfat	-	-	0.93' \pm 0.040	0.94' \pm 0.031
Fat of ham	-	-	0.87' \pm 0.053	0.85' \pm 0.048
Leaf fat	-	-	0.61' \pm 0.086	0.82' \pm 0.052
Jowl	0.19 \pm 0.107	0.19' \pm 0.089	0.59' \pm 0.088	0.48' \pm 0.080
Fore knuckle	0.51' \pm 0.093	0.38' \pm 0.083	0.30' \pm 0.103	0.35' \pm 0.085
Hind knuckle	0.53' \pm 0.092	0.68' \pm 0.067	0.37' \pm 0.101	0.57' \pm 0.075
Sacrum	0.13 \pm 0.108	0.26' \pm 0.088	0.38' \pm 0.100	0.42' \pm 0.083

+ $P \leq 0.05$

On the basis of detailed analysis of obtained results we can conclude, that lean tissue percentage in the whole carcass body is the best characterised by lean percentage of ham, sparerib, loin and shoulder (i.e. main lean cuts). It confirms suitability of such carcass value characters as main lean cuts percentage and lean percentage of ham.

Fat percentage can be estimated on the basis of the share of fat without skin from the back and ham and from the share of the leaf fat.

As regards other body components, it would be emphasized high and significant correlations between the skin percentage of the whole body and percentage of skin from the back.

Table 3. - RELATIONS BETWEEN THE SHARE OF BODY COMPONENTS IN THE WHOLE BODY AND IN INDIVIDUAL BODY PARTS IN DAM AND SIRE POPULATIONS

Body part	Lean tissue		Fat tissue	
	Dam	Sire	Dam	Sire
	populations		populations	
	$r \pm SE$			
Sparerib	0.51* \pm 0.093	0.65* \pm 0.969	-	-
Loin	0.61* \pm 0.086	0.57* \pm 0.075	-	-
Shoulder	0.49* \pm 0.095	0.61* \pm 0.072	0.30* \pm 0.103	0.37* \pm 0.085
Ham	0.48* \pm 0.095	0.83* \pm 0.051	-	-
Belly	0.43* \pm 0.098	0.39* \pm 0.084	0.70* \pm 0.077	0.60* \pm 0.073
Trim	0.14* \pm 0.108	0.19* \pm 0.090	0.55* \pm 0.091	0.08* \pm 0.091
Backfat	-	-	0.81* \pm 0.064	0.79* \pm 0.056
Hat of ham	-	-	0.67* \pm 0.081	0.73* \pm 0.062
Jowl	-	-	0.19* \pm 0.107	0.51* \pm 0.079
Fore knuckle	0.43* \pm 0.098	0.58* \pm 0.074	0.43* \pm 0.098	0.61* \pm 0.072
Hind knuckle	0.54* \pm 0.091	0.78* \pm 0.057	0.42* \pm 0.098	0.53* \pm 0.077
Sacrum	0.45* \pm 0.097	0.36* \pm 0.085	0.23* \pm 0.106	-0.06 \pm 0.091

+ P \leq 0.05**REFERENCES:**

1. Demo P., J. Poltárski, L. Lagin, M. Pavlič (1995): Quality assessment of dressed carcasses of pig hybrids selected for the higher percentage of lean cuts. *Živočišná Vyroba*, 40, 6, 277-281.
2. Pavlík J.: Production traits of Preštica Black-Pied pigs. Monography, Univ. of Agric., Prague, 1991, 84p.
3. Pulkrábek J., Fiedler J., J. Smital, L. Houška, T. Adamec: Tissue percentages in the side of pork of pig breeds raised in the Czech Republic. *Živočišná Vyroba*, 39, 1994, 8, 743-751.

ODNOS IZMEĐU POJEDINIH DIJELOVA SVINJSKIH POLOVICA**Sažetak**

Sve brže promjene tipa svinja prouzročile su porast nekih tkiva, dok se udio drugih tkiva smanjio.

Sa stajališta selekcije dobro je ocijeniti odnose između raznih značajki. Na primjer, Demo i sur. (1995) promatrali su kod križanaca što su se upotrebljavali za stvaranje linija visokog postotka nemasnog (krtog) mesa.

Prikazani rad opisuje odnose između značajki mjernih pomoću detaljne analize svinjskih polovica. Istraživala se mogućnost zamjene kompleksne analize čitavih polovica s analizom samo jednog ili nekoliko dijelova polovica, pazeći pritom na točnost postupka analize.

Primljeno: 15. 2. 1997.