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S.40 „Pig Production Free Communications“

THE IMPACT OF THE PLANT PROTEIN SOURCE-SUBSTITUTION FOR MEAT-AND-BONE MEAL ON PERFORMANCE AND CARCASS VALUE IN GROWING-FINISHING PIGS

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Objective

The aim of the study was to work out a analyse of the effect of substituting vegetable protein - soya for meat-bone meal on the achieved parameters of the fattening performance, carcass value and above all the economy of production in fattening final hybrid pigs.

Materials and Methods

The study included in total 72 hybrid pigs of the (LWs x PN) x (LWd x L) genotype at the age of 68 days of the total average live weight of 24.15 kg. The fattening period tends 91 days. For the purpose of the testing of the substitution of meat-bone meal the pigs included in the test were divided into **group I** (18 barrows and 18 gilts, fed with CFM **with** the use of **meat-bone meal**) and **group II** (18 barrows and 18 gilts, fed with CFM **without** the use of meat-bone meal).

After achieving the total average live weight of approximately 106 kg the pigs were slaughtered. The evaluation of the carcass value in each animal was based on: average live weight during the fattening period (ALW - kg), feed conversion ratio, resp. consumption of CFM per 1kg of live weight gain (FCR – kg), average daily weight gain (ADG - g), carcass weight of pig (kg), weight of the right half (kg), carcass length (cm), back fat thickness at the last sternal vertebra (mm), average height of the back fat thickness (mm), lean meat share (%) (by the FOM method).

The obtained data was processed by mathematical-statistical methods using the SAS program, the differences between the examined traits were tested by means of the variance analysis.

Results

Table 1. Composition of experimental diets

		CFM group I			CFM group II		
		< 40 kg LW	40 - 60 kg LW	> 60 kg LW	< 40 kg LW	40 - 60 kg LW	> 60 kg LW
meat bone meal	**g/kg**	**40**	**40**	**40**	**0**	**0**	**0**
Crude Protein	g/kg	176	164	138	176	164	138
ME	MJ/kg	13.1	13.1	13.1	13.1	13.1	13.1
Lysine	g/kg	10.5	9.6	7.5	10.5	9.6	7.5
Theronine	g/kg	6.9	5.8	4.5	6.9	5.8	4.5
Methionine	g/kg	3.2	2.9	2.2	3.2	2.9	2.2

Table 2. Appreciation of lean meat share formation in the carcasses in respekt to live weight, age and nutrition type in pigs (measured by Aloka-FOM)

Age (days)	Group I. (n = 36) ALW (kg)	Group I. (n = 36) Lean meat share (%)	Group II. (n = 36) ALW (kg)	Group II. (n = 36) Lean meat share (%)
124	74.8	57.6	75.3	57.1
131	81.6	59.2*	82.3	57.2*
138	88.1	57.9	88.7	56.5
145	94.8	57.1	95.2	55.8
152	100.9	56.7	100.9	55.2
159	106	56.8	106.2	55.3

* P < 0,05

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Conclusions

- Substituting the vegetable protein for animal protein had neither any significant impact on the intake of feed nor on the growth intensity, i.e. the average daily weight gain and feeding conversion,
- the animals fed with CFM without animal protein achieve lower values of meat formation,
- the pigs fed with animal protein achieved a greater area and a higher height of the MLLT lean meat, and significantly lower values of the height of the back fat were found out in the whole course of the growth of pigs,
- the pigs fed only with the vegetable protein deposit more fat to the detriment of lean meat formation,
- the animals feed with CFM with the animal protein had in the course of the test a higher intake of crude protein at individual monitored week intervals and reflected this increased intake in the higher meat formation in the carcass.

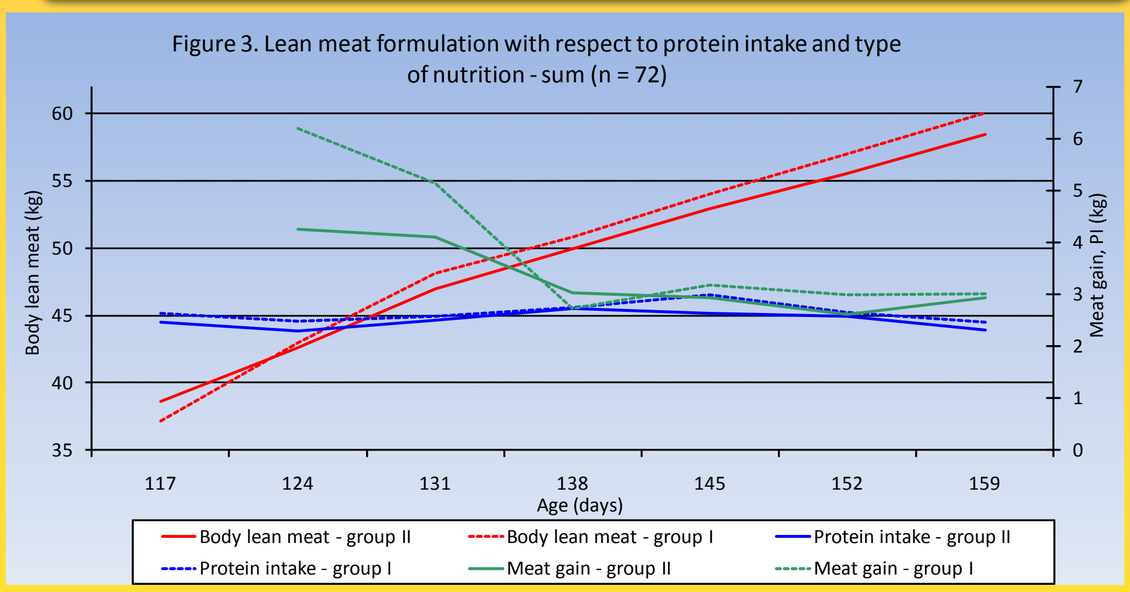

Table 3. Fattening performance and efficiency of lean meat formation with regard to the type of nutrition

Age (days)	ALW (kg)	ADG (g)	PI (kg/week/pig)	Lean meat share (%)	Meat (kg)	Meat formation (kg)	Effectivity
Group I. (n = 36)							
117	68.3	1002	2.64	54	37.2	.	.
124	74.8	931	2.47	57.6	43	6.2	2.5
131	81.6	967	2.58	59.2	48.1	5.1	2
138	88.1	930	2.74	57.9	50.8	2.7	0.99
145	94.8	957	3	57.1	54	3.2	1.06
152	100.9	869	2.66	56.7	57	3	1.12
159	106	738	2.46	56.8	60	3	1.23
Group II. (n = 36)							
117	68.7	990	2.46	56.2	38.6	.	.
124	75.3	939	2.29	57.1	42.6	4.2	1.85
131	82.3	1000	2.5	57.2	46.9	4.1	1.64
138	88.7	927	2.74	56.5	50	3	1.11
145	95.2	921	2.63	55.7	52.9	2.9	1.12
152	100.9	823	2.58	55.2	55.5	2.6	1.01
159	106.2	744	2.32	55.3	58.5	2.9	1.26