EFFECT OF DIETS CONTAINING RAPESEED MEAL, SOYABEAN MEAL, DRIED SKIM MILK AND FISH MEAL ON PERFORMANCE OF WEANED PIGS

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Soyabean meal /SBM/, dried skim milk /DSM/ and fish meal /FM/ are protein supplements commonly used in the diets for young pigs. In recent years, the development of low erucic and low glucosinolate varieties of rape has led to an increased use of rapeseed meal /RSM/ in pig feeding. However, it is probably still inappropriate to use RSM as the only protein supplement in pig diets. There is also a lack of consensus to the optimum level of inclusion of RSM in the diets for young pigs. Studies involving the replacement of SBM by RSM /Canola meal/ in weaned pig diets have shown, that as the level of RSM in diet was increased there was a decrease of feed intake and daily gains of pigs weaned at 28 days of age, Mc Intosh and Aherne /1982a/. In diet palatability studies, when given a choice, pigs fed from 5 to 9 weeks of age consumed approximately 2,5 - 7 times more SBM supplemented diet than diets containing 5 - 20% Canola meal, Mc Intosh and Aherne /1982b/. However, replacement of 12% SBM by 16% RSM in semi-complex diets /containing 18% DSM and 4% FM/ had no effect on pig performance from 30 to 56 days of age ,Kozłowski et al.,1984.

The objective of experiment herein reported was to determine performance of pigs /4 - 8 weeks of age/ fed diets containing polish commercial"double zero" RSM, SBM, DSM and FM.

Material and methods

Composition of the experimental diets is shown in table 1. All four diets were formulated to contain 210 g crude protein and 13,9 MJ metabolizable energy per kg. Diet 1 was based on grains and SBM as the only protein supplement. Diets 2 - 4 contained 10% RSM and 22,0; 15,5 and 13,0% SBM, respectively. Moreover diet 3 contained 10% DSM, and diet 4 contained 5% FM.

The experiment was conducted at commercial large-scale pig farm. Forty litters of crossbred /Polish Large White x Polish Landrace/ pigs were allotted to one of four experimental diets on the basis of average initial live weight and number of pigs per litter at 21 days of age. Pigs were given diets since 21 day and were weaned at 28 /± 2/ days of age. The experiment lasted 4 weeks until 56 days of age of pigs. Feed and water were available ad libitum. Pigs were weighed at 21, 28 and 56 days of age. Feed intake was determined on a weekly basis. Feed wastage was collected daily and taken into account in calculating of feed intake and feed conversion efficiency. Blood samples for plasma urea determination were taken from two pigs /one barrow and one gilt/ of each experimental litter at 49 days of age of pigs.

Results and discussion

The results of the experiment are presented in table 2. There was no significant difference in average daily feed intake of pigs fed any of four experimental diets. Addition of 10% DSM or 5% FM had no effect on consumption of diets containing 10% RSM. Average daily gains were higher for pigs fed diets with addition of DSM or FM. However, these differences were not significant. Rate of growth of pigs was generally similar to the results obtained in the earlier experiment, which was also carried out under the conditions of large-scale farm, Kozłowski et al. ,1984 . Feed conversion efficiency was slightly improved by the supplementation of 10% DSM /diet 3/, but this difference was not significant. Plasma urea concentration was similar for pigs of all groups. However, the higest variability in this case was noticed. The obtained coefficients of variation changed from 21,5% /group 3/ to 35,1% /group 1/.

In conclusion, the results of present study indicate, that under the conditions of described experiment, investigated diets did not differentiate pig performance during four week post-weaning period. Thus, evaluated polish "double zero" RSM was as good as other protein sources when used in composition with other protein supplements.

References

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Table 1

Composition of the experimental diets

Diets	1	2	3	4
Ingredients, %				
Rapeseed meal /CP[x] 37,4%/	-	10,0	10,0	10,0
Soyabean meal /CP 44,9%/	29,0	22,0	15,5	13,0
Dried skim milk /CP 31,9%/	-	-	10,0	-
Fish meal /CP 61,7%/	-	-	-	5,0
Wheat	25,0	25,0	25,0	25,0
Barley	33,7	30,7	27,2	34,7
Fat concentrate /"Celat"/	8,0	8,0	8,0	8,0
Dicalcium phosphate	1,7	1,7	1,7	1,7
Ground limestone	0,3	0,3	0,3	0,3
Salt	0,3	0,3	0,3	0,3
Premix /"Polfamix 3P/	2,0	2,0	2,0	2,0
Determined chemical composition,%				
Dry matter	89,2	89,9	89,0	89,5
Crude protein	21,6	20,9	21,7	20,7
Ether extract	3,2	2,9	3,1	3,2
Crude fibre	4,1	4,7	4,0	4,2

x/ CP - crude protein

Table 2

Performance of weaned pigs /4-8 weeks of age/

Item	Diets			
	1	2	3	4
Number of litters	10	10	10	10
Survivability of pigs, %	99,0 /±3,16/	99,0 /±3,16/	97,5 /±7,91/	97,5 /±7,91/
Average live weight, kg				
- at 3 weeks	5,87 /±0,564/	5,85 /±0,577/	5,75 /±0,518/	5,84 /±0,799/
- at 4 weeks	7,38 /±0,476/	7,25 /±0,730/	7,01 /±0,650/	7,10 /±0,954/
- at 8 weeks	14,58 /±1,320/	14,51 /±1,548/	15,10 /±1,898/	14,92 /±1,598/
Average daily gains /4-8 weeks of age/, g	257 /±44,1/	255 /±51,4/	289 /±63,8/	279 /±34,0/
Average daily feed intake, g	378 /±62,9/	382 /±69,0/	399 /±82,5/	403 /±80,8/
Feed conversion efficiency	1,47 /±0,059/	1,50 /±0,141/	1,39 /±0,082/	1,45 /±0,163/
Plasma urea concentration mmol/l	6,32 /±2,217/	6,01 /±1,760/	6,36 /±1,366/	5,93 /±1,415/