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THE EFFECT OF ADDITION OF PROBIODOR ON NUTRITIVE VALUE OF GROWER MIXTURE IN PIG FEEDING

UČINAK DODAVANJA PROBIODORA NA HRANIDBENU VRIJEDNOST KRMNE SMJESE ZA TOV U HRANIDBI SVINJA

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SUMMARY

In the experiment carried out on 96 fatteners the possibility of improving fattening efficiency of young pigs (25-60 kg) fed on rapeseed meal and pea or lupin by supplementing them with the premix Probiodor MZ 2000 containing diatom earth and kaolinite was examined.

The results obtainede suggest that replacing soybean meal with rapeseed meal together with pea resulted in slight decrease of body weight gains (2.6%) but when lupin was used instead of pea this decrease was more distinct (11.8%). Probiodor increased body weight gains of pigs fed with soybean meal by 1% and those fed with pea or lupin by 9.0 and 8.3, respectively. Probiodor also improved feed utilization.

INTRODUCTION

Alkaloids and oligosaccharides contained in the legume seeds decreased their nutritive value. Their nutritive value can be lowered also by mycotoxins produced by fungi when seeds are stored in unsuitable conditions (Gatel, 1994; Pastuszewska, 1997; Brzoska and Pieszka, 1999). In these instances the nutritive value of legumes can be improved by supplementing them with antibiotics (Korniewicz et al., 1997) or enzymes (Gdala et al., 1995, 1997; Flis et al., 1998; Campbell and Poel, 1998).

It seems to be interesting in what degree the supplement of surface active agents such as diatom earth or kaolinite could improve utilization by fattening pigs of lupin and pea seeds mixed with rapeseed meal. It concerns especially the first period of fattening when pigs are most sensitive to antinutritive substances.

The aim of this experiment was to increase in pig feeding the efficiency of mixtures containing lupin or pea together with rapeseed meal by supplementing them with the premix Probiodor MZ 2000 containing surfactans.

MATERIAL AND METHODS

The experiment was carried out on 96 fatteners descended from sows (Polish Landras x Polish Large White) mated by Line 990 boar. Pigs were allocated to 3 experimental groups:

Group I - received soybean meal as the main protein source

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Group II - soybean meal was substituted with rapeseed meal and pea,

Group III - pea was substituted with lupin.

Composition of experimental feed mixtures is given in Table 1.

Animals were maintained in group pens, four pigs of the same sex in each. Pigs weighing 20-30 kg received from 1.4 kg of feed daily to 2.4 kg when they reached 60 kg of body weight.

Gross composition of feed mixture was analysed according to AOAC (1990) and amino acid composition of proteins was estimated using Beckmann automatic analyzer.

Data were analysed according to STATISTICA package.

Table 1. Composition of feed mixtures and their nutritive value
Tablica 1. Sastav krmne smjese i njezina hranidbena vrijednost

Item	Soybean meal Sojina sačma		Rapeseed meal+pea Repičina sačma+grašak		Rapeseed meal+lupin Repičina sačma+lupina	
	Premix kind - Vrsta premiksa					
	Standard	Probiodor	Standard	Probiodor	Standard	Probiodor
Wheat - Pšenica	20.0	20.0	20.0	20.0	20.0	20.0
Barley - Ječam	51.3	51.0	38.3	38.0	50.2	50.0
Soybean meal - Sojina sačma	16.0	16.00	-	-	-	-
Rapeseed meal - Repičina sačma	-	-	10.0	10.0	10.0	10.0
Meat - bone meat Mesno - košt. brašno	3.0	3.0	3.0	3.0	3.0	3.0
Wheat bran - Pšenične posije	5.0	5.0	4.0	4.0	4.0	4.0
Pea seeds - Sjemenke graška	-	-	20.0	20.0	-	-
Lupine seeds - Sjemenke lupine	-	-	-	-	8.0	8.0
Fodder fat - Krmna mast	3.0	3.0	3.0	3.0	3.0	3.0
Limestone - Vapnenac	0.8	-	0.8	-	0.8	-
Fodder salt - Krmna sol	0.3	-	0.3	-	0.3	-
Premix PT-1	0.5	-	0.5	-	0.5	-
Lysine - Lizin	0.10	-	0.10	-	0.2	-
Premix Probiodor MZ 2000*	-	2.0	-	2.0	-	2.0
In 1 kg mixture: - Na 1 kg smjese						
Metabolizable energy (MJ) Metabolička energija (MJ)	12.89		12.88		12.75	
Crude protein (%) Sirove bjelančevine (%)	17.88		16.18		16.00	
Lysine (%) - Lizin	0.90		0.86		0.85	
Met + Cys (%)	0.66		0.61		0.62	

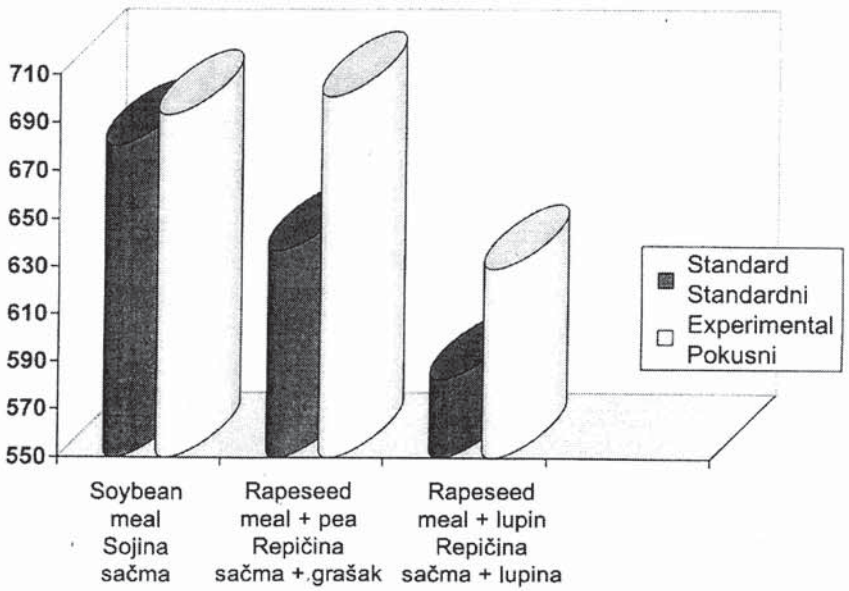
* Premix contains: minerals, vitamins, diatamite, kaolinite

* premiks sadrži: minerale, vitamine, kaolinat, diatamit

RESULTS

The results of fattening (Table 2) proved that replacing the soybean meal with rapeseed meal and pea in feed mixture for young pigs (25-60 kg) resulted in slight decrease of body weight gain (2.6%). When lupin seeds were used this decrease was bigger (11.8%). Feed conversion per 1 kg of body weight gain was 3.2% and 9.9% higher, respectively. The similar relations were observed in energy utilization. There were no statistically significant differences in protein conversion for 1 kg of body weight gain, which changed from 368 g (group II) to 387 g (group I).

Figure 1. Fattening period (25-60 kg) - The effect of premix Probiodor MZ 2000 supplementation on average body weight gains (g)
Slika 1. Razdoblje tova (25 do 60 kg) - Učinak dodavanja premiksa Probiodor MZ 2000 ns prosječno povećanje tjelesne mase (g)



The efficiency of premix Probiodor depended on the kind of feed mixture used (Fig. 1). In the case of mixture containing soybean meal the daily weight gains were 7 g higher when Probiodor was used. In the case of pigs fed on mixtures containing rapeseed meal and pea or lupin differences (9.0 and 8.3%, respectively) were statistically significant. Probiodor decreased feed conversion 1 kg of body weight gain (10.7 and 10.0% in the case of pea and lupin, respectively) and these differences were statistically highly significant. The better feed utilization resulted in lower energy (10.6 and 9.8% and protein (10.7 and 9.8%) used for 1 kg of body weight gain.

Table 2. Results of the experiment
Tablica 2. Rezultati pokusa

Item	Kind of mixtures - Vrsta smjese			
	Soybean meal Sojina sačma	Rapeseed meal+pea Repičina sačma+grašak	Rapeseed meal+lupin Repičina sačma+lupina	SEM
Average daily weight gains (g) Prosječan dnevni porast težine (g)	687 Aa	669Aa	606Bb	6.831
Average feed conversion per 1 kg of BWG (MJ) Prosječna konverzija hrane na 1 kg prirasta (MJ)	2.84Bb	2.93Bb	3.12Aa	0.036
Metabolizable energy conversion 1kg of BWG (MJ) Konverzija metabol. energije 1 kg prirasta (MJ)	36.6Bb	37.8AB ab	39,8Aa	0.459
Crude protein conversion 1 kg of BWG (g) Konverzija sirovih bjelančevina 1 kg prirasta (g)	387	368	384	3.984

DISCUSSION

The results of this experiment proved that complete replacement of soybean meal with rapeseed meal and pea did not change the fattening effects considerably. Similar results were obtained by Florek et al. (1999) who fed pigs on mixtures containing 11% of rapeseed meal and 15% of pea cv. Mazurek. Also Korniewicz et al. (1997) obtained similar results using lower levels of these components.

Replacing soybean meal with rapeseed meal and lupin resulted in significant decrease of mean body weight gains. This unfavourable phenomenon was to a high degree diminished by supplementing feed with premix containing surfactants: diatom earth and kaolinite. They improved daily body weight gains in such a degree that differences between animals receiving soybean meal and standard premix and those fed on lupin seed and experimental premix decreased by 23 g i.e. 2.9%. Also Wetscherek et al. (1990) found that addition of zeolite and kaolinite to feed mixtures for fattening pigs improved their body weight gains and feed utilization. According to Korol (1995) supplementing feed mixtures for pigs with detoxicants improved daily weight gains and feed conversion by about 5%. This difference can be higher when feed contain mycotoxins.

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SAŽETAK

U pokusu koji je proveden na 96 tovljenika ispitivana je mogućnost poboljšanja djelotvornosti tova mladih svinja (25 do 60 kg) hranjenih repičinom sačmom i graškom ili lupinom dodatkom premiksa Probiodor MZ 2000 koji sadrži diatomsku zemlju i kaolin.

Prema dobivenim rezultatima zamjena sojine sačme sačmom repice s graškom dovela je do neznatnog smanjenja porasta tjelesne težine (2.6%) ali kad je upotrijebljena lupina umjesto graška taj je pad bio izraženiji (11.8%). Probiodor je povećao tjelesnu težinu svinja hranjenih sojinom sačmom za 1% a kod onih hranjenih graškom ili lupinom za 9.0% odnosno 8.3%. Probiodor je također poboljšao iskorištenje hrane.

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TESTIRANJE DVAJU HIBRIDA PILIĆA MESNOG TIPA (ROSS 208 i 308) S GLEDIŠTA NJIHOVE ISKORISTIVOSTI

TESTING TWO HYBRIDS OF CHICKENS (ROSS 208 AND 308) FROM THE VIEW OF PERFORMANCE

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SAŽETAK

Cilj ovog rada bio je utvrditi razine klaoničke iskoristivosti tovljenih pilića (mesa križanaca ROSS 208 i ROSS 308).

Pokus je proveden na pilićima razdvojenim po spolu i trajao je do 42. dana starosti. Pilići su smješteni na dubokoj prostirci s kontroliranom temperaturom, osvjetljenjem i načinom hranidbe u pokusnom peradarniku. Pokusom je obuhvaćeno 70 pilića ROSS 208 (15 mladih pijetlova i 35 kokica) i 70 pilića ROSS 308 (35 mladih pijetlova i 35 kokica). Brojleri su hranjeni ad lib. krmnom smjesom BR 1 (od 1. do 14. dana) i BR 2 (od 16. do 42. dana).

Prosječna težina pilića ROSS 208 bila je 2.09 kg (kokice) i 2.51 kg (pijetlovi) 42. dana starosti, a pilića ROSS 308 bila je 2.30 kg (kokice) i 2.70 kg (pijetlovi). Klaonička iskoristivost pilića ROSS 208 bila je 69,74% (kokice) i 69,06% (pijetlići), i ROSS 308 72,43% (kokice) i 72,03% (pijetlovi) 42. dana starosti. Razlike (prosječna težina i klaonička iskoristivost) među testiranim pilićima bile su zanemarive ($P<0.05$) i vrlo značajne ($P<0,01$). Ove razlike nisu dokazane abdominalnim masnim tkivom i iskoristivosti bataka. Visoku iskoristivost pektoralnog mišića u ROSS 308 (završno $P<0,01$) smatra se pozitivnom značajkom. Rezultati pokazuju da križanac ROS 308 ima veću proizvodnu vrijednost i iskoristivost u usporedbi s ROSS 208.

UVOD

S gledišta strukture ljudske prehrane jedna je od glavnih zadaća u velikom broju zemalja pokrivati potrebe stanovništva bjelančevinama životinjskog podrijetla. Iz tog razloga meso brojlera postaje značajnom namirnicom i njegov udio u prehrani ljudi stalno se povećava.

U današnje vrijeme upravo meso brojlera postaje sve značajnijom sirovinom za proizvodnju

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