



动物营养学报

CHINESE JOURNAL OF ANIMAL NUTRITION

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动物营养学报 » 2013, Vol. 25 » Issue (6) :1199-1206 DOI: 10.3969/j.issn.1006-267x.2013.06.011

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不同蛋白质源组合饲料对断奶仔猪生长性能和血清生化指标的影响

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Effects of Diets with Different Protein Source Combinations on Growth Performance and Serum Biochemical Indices of Weaner Piglets

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摘要 本试验旨在研究不同蛋白质源组合代替基础饲料中的血浆蛋白粉对断奶仔猪生长性能和血清生化指标的影响。选择日龄和体重相近的断奶仔猪200头,随机分为5组,每组4个重复,每个重复10头仔猪,试验分为教槽阶段和保育阶段。教槽阶段(21~33日龄):对照组饲喂含4%血浆蛋白粉的基础饲料,试验组分别饲喂含3%小麦水解蛋白+2%进口酵母提取物(I组)、5%酪蛋白(II组)、3%大豆分离蛋白+2%进口酵母提取物(III组)和3%大豆分离蛋白+2%国产酵母提取物(IV组)的试验饲料,试验期12 d。保育阶段(34~55日龄):教槽阶段试验结束后,5组均饲喂同一种保育料,试验期21 d。结果表明:1)教槽和保育阶段,各试验组的平均日采食量(除教槽阶段试验I组外)、料重比和腹泻率与对照组相比差异均不显著($P>0.05$);教槽阶段,试验I组的平均日增重显著低于对照组($P<0.05$),而试验III组的平均日增重显著高于对照组($P<0.05$),试验IV组显著高于对照组($P<0.05$);保育阶段,试验I组的粗蛋白质表观消化率显著低于对照组($P<0.05$);保育阶段,试验I组的粗蛋白质表观消化率显著低于对照组($P<0.05$),试验IV组显著高于对照组($P<0.05$)。2)仔猪33日龄时,各试验组血清总蛋白、白蛋白、球蛋白、尿素氮、葡萄糖含量、白蛋白/球蛋白和谷丙转氨酶及谷草转氨酶活性与对照组相比差异均不显著($P>0.05$)。试验II组血清免疫球蛋白G含量显著低于对照组($P<0.05$),但免疫球蛋白A和免疫球蛋白M含量显著高于对照组($P<0.05$)。从结果中可以看出,3%小麦水解蛋白+2%进口酵母提取物、5%酪蛋白、3%大豆分离蛋白+2%进口酵母提取物、3%大豆分离蛋白+2%国产酵母提取物可以替代基础饲料中的血浆蛋白粉,并且对断奶仔猪的生长性能无显著影响。

关键词: 血浆蛋白粉 小麦水解蛋白 酪蛋白 大豆分离蛋白 酵母提取物 断奶仔猪

Abstract: This experiment was conducted to discuss the effects of diets with different protein source combinations on growth performance and serum biochemical indices of weaner piglets. According to similar age and weight, a total of 200 weaner piglets were randomly divided into five groups, each group had 4 replicates and each replicate had 10 piglets. The experiment was divided into 2 phases: creep phase (21 to 33 days of age) and starter phase (34 to 55 days of age). In the creep phase, experimental design was as follows: piglets in the control group were fed a basal diet containing 4% spray-dried plasma protein, piglets in experimental groups I, II, III and IV were fed the diets containing 3% wheat germ protein hydrolysates + 2% imported yeast extract, 5% casein, 3% isolated soybean protein + 2% imported yeast extract, 3% soybean protein isolate + 2% domestic yeast extract to replace spray-dried plasma protein in the basal diet, respectively, and this experiment lasted for 12 days. After creep phase, all piglets were translated into the starter phase, and fed the same starter diets. This experiment lasted for 21 days. The results showed as follows: 1) in the two phases, the average daily feed intake (except for experimental group I in creep phase), feed/gain and diarrhea rate in experimental groups had no significant differences compared with the control group ($P>0.05$); the average daily gain in experimental group I in the creep phase was significantly lower than that in the control group ($P<0.05$), while the experimental group III was significantly higher than the control group ($P<0.05$), and the crude protein apparent digestibility in experimental group I was significantly lower than that in the control group ($P<0.05$). In the starter phase, the crude protein apparent digestibility in experimental group I was significantly lower than that in the control group ($P<0.05$), however, the experimental group IV was significantly higher than the control group ($P<0.05$). 2) On 33 days of age, compared with the control group, the contents of total protein, albumin, globulin, urea nitrogen and glucose, albumin/globulin, and the activities of glutamic-pyruvic transaminase and glutamic-oxal(o)acetic transaminase in serum in the experimental groups had no significant differences ($P>0.05$). The immunoglobulin G content in

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experimental group II was significantly lower than that in the control group ($P < 0.05$), but immunoglobulin A and immunoglobulin M contents were significantly higher than those in the control group ($P < 0.05$). It is concluded that 3% wheat germ protein hydrolysates + 2% imported yeast extract, 5% casein, 3% isolated soybean protein + 2% imported yeast extract, 3% isolated soybean protein + 2% domestic yeast extract can replace spray-dried plasma protein in the basal diet, which do not affect the growth performance of weaner piglets.

Keywords: [spray-dried plasma protein](#), [wheat germ protein hydrolysates](#), [casein](#), [isolated soybean protein](#), [yeast extract](#), [weaner piglets](#)

收稿日期: 2012-12-17;

基金资助:

郑州市重大科技专项——安全高效低成本饲料的研制与应用(3080063)

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引用本文:

石秋锋, 桑静超, 辛小召等. 不同蛋白质源组合饲料对断奶仔猪生长性能和血清生化指标的影响[J]. 动物营养学报, 2013, V25(6): 1199-1206

SHI Qiufeng, SANG Jingchao, XIN Xiaozhao etc. Effects of Diets with Different Protein Source Combinations on Growth Performance and Serum Biochemical Indices of Weaner Piglets[J]. Chinese Journal of Animal Nutrition, 2013, V25(6): 1199-1206.

链接本文:

http://118.145.16.228/Jweb_dwyy/CN/10.3969/j.issn.1006-267x.2013.06.011 或 http://118.145.16.228/Jweb_dwyy/CN/Y2013/V25/I6/1199

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