



动物营养学报

CHINESE JOURNAL OF ANIMAL NUTRITION

首页 期刊介绍 编委会 编辑部 投稿须知 期刊订阅 广告服务 联系我们 留

动物营养学报 2012, Vol. 24 Issue (6) : 1085-1091 DOI: 10.3969/j.issn.1006-267x.2012.06.013

饲料营养

最新目录 | 下期目录 | 过刊浏览 | 高级检索

<< Previous Articles | Next Article

>>

饲料中添加甜菜碱对断奶仔猪生长性能和血清生化指标的影响

董冠¹, 杨维仁¹, 杨在宾¹, 姜淑贞¹, 张桂国¹, 郭凯²

1. 山东农业大学动物科技学院, 泰安 271018;

2. 山东省济宁市南阳湖农场, 济宁 272000

Effects of Betaine on Growth Performance and Serum Biochemical Parameters of Weaner Piglets

DONG Guan¹, YANG Weiren¹, YANG Zaibin¹, JIANG Shuzhen¹, ZHANG Guiguo¹, GUO Kai²

1. Department of Animal Science and Technology, Shandong Agricultural University, Tai'an 271018, China;

2. Nanyang Lake Farm Pig Breeding Farm, Jining 272000, China

- 摘要
- 参考文献
- 相关文章

Download: PDF (897KB) HTML (1KB) Export: BibTeX or EndNote (RIS) Supporting Info

摘要 本试验旨在研究饲料中添加甜菜碱对断奶仔猪生长性能和血清生化指标的影响。选用体重(7.12±0.11) kg断奶后1周的“杜×长×大”仔猪160头,随机分为4组,每组4个重复,每个重复10头。对照组饲喂基础饲料,试验组分别饲喂在基础饲料上添加600、900、1 200 mg/kg甜菜碱的试验饲料。试验期28 d。结果表明,饲料中添加甜菜碱能够显著提高仔猪的平均日采食量和平均日增重($P<0.05$),显著增加血清生长激素和胰岛素样生长因子 I 的含量($P<0.05$)。600 mg/kg甜菜碱显著降低了血清尿素氮和低密度脂蛋白含量($P<0.05$)。但饲料中添加甜菜碱对血清中总蛋白、白蛋白、甘油三酯、胆固醇、高密度脂蛋白含量和代谢酶的活性无显著影响($P>0.05$)。由此可见,饲料中添加甜菜碱可以提高断奶仔猪的生长性能,促进蛋白质的沉积和脂肪代谢,其中以添加量600 mg/kg效果最好。

关键词: 甜菜碱 断奶仔猪 生长性能 血清代谢

Abstract: This experiment was conducted to investigate the effects of dietary betaine on growth performance and serum biochemical parameters of weaner piglets. A total of 160 "Duroc×Yorkshire×Landrace" weaner piglets with an average body weight of (7.12±0.11) kg were randomly divided into 4 groups with 4 replicates per group and 10 piglets in each replicate. Piglets in control group were fed a basal diet, and the others in experimental groups were fed the basal diet supplemented with 600, 900 and 1 200 mg/kg betaine, respectively. The experiment lasted for 28 days. The results showed as follows: supplementation of betaine could significantly improve average daily feed intake and average daily gain ($P<0.05$), and significantly increase the contents of growth hormone and insulin-like growth factor I in serum ($P<0.05$). The supplementation of 600 mg/kg betaine was significantly reduced the contents of serum urea nitrogen and low-density lipoprotein in serum ($P<0.05$). However, supplementation of betaine had no significant effects on the contents of total protein, albumin, triglyceride, cholesterol, high-density lipoprotein in serum and metabolic enzyme activity ($P>0.05$). In conclusion, supplementation of betaine can improve growth performance of weaner piglets, promote protein deposition and fat metabolism, and the optimum supplemental level of betaine is 600 mg/kg.

Keywords: betaine, weaner piglets, growth performance, serum metabolism

收稿日期: 2012-01-04;

基金资助:

山东省现代农业产业技术体系生猪创新团队建设项目

通讯作者 杨维仁,教授,博士生导师,E-mail: wryang@sdau.edu.cn

引用本文:

董冠, 杨维仁, 杨在宾等. 饲料中添加甜菜碱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, 2012,24(6): 1085-1091

DONG Guan, YANG Weiren, YANG Zaibin etc. Effects of Betaine on Growth Performance and Serum Biochemical Parameters of Weaner Piglets Chinese Journal of Animal Nutrition, 2012,24(6): 1085-1091.

Service

- ▶ 把本文推荐给朋友
- ▶ 加入我的书架
- ▶ 加入引用管理器
- ▶ Email Alert
- ▶ RSS

作者相关文章

- ▶ 董冠
- ▶ 杨维仁
- ▶ 杨在宾
- ▶ 姜淑贞
- ▶ 张桂国
- ▶ 郭凯

- [1] EKLUND M,BAUER E,WAMATU J,et al.Potential nutritional and physiological functions of betaine in livestock[J].Nutrition Research Reviews,2005,18(1): 31-48.
 - [2] BUDAVARI S.The merck Index[M].11th ed.Rahway,N J:Merck and Co.,Inc.,1989: 1201-1202.
 - [3] RATRIYANTO A,MOSENTHIN R,BAUER E,et al.Metabolic,osmoregulatory and nutritional functions of betaine in monogastric animals[J].Asia Australasian Journal of Animal Sciences,2009,22: 1461-1476.
 - [4] 尹海富,韩英,范兆廷,等.水产饲料诱食剂的应用[J].水产学杂志,2003,16(2): 72-76.
 - [5] 占秀安,许梓荣.甜菜碱在肉鸡体内供甲基代谢及其节约蛋氨酸效应机制[M].中国粮油学报,2004,19(3): 78-81.
 - [6] 汪以真,占秀安.甜菜碱对肉雏鸡作用效果的研究[J].动物营养学报,1998,10(2): 45-51.
 - [7] 王昕陟,刘家胜.甜菜碱对肥育猪生长性能及胴体品质的影响[J].养猪,2006(1): 33-34.
 - [8] 边连全,安磊旭,张东梅,等.甜菜碱和胆碱对育肥猪胴体品质及肉品质的影响[J].饲料工业,2009,30(4): 6-8.
 - [9] 许梓荣,余东游.甜菜碱对断奶仔猪的作用效果及其机理探讨[J].浙江大学学报:农业与生命科学版,1999,25(5): 543-546.
 - [10] HUANG Q C,XU Z R,HAN X Y,et al.Effect of betaine on growth hormone pulsatile secretion and serum metabolites in finishing pigs[J].Journ Animal Physiology and Animal Nutrition,2007, 91: 85-90.
 - [11] YOUNG H,SUN J H,GU B P,et al.Effects of dietary glycine betaine on blood characteristics and pork quality[J].Journal of Muscle Foods,2010,21: 87-101.
 - [12] MARTINS J M,NEVES J A,FREITAS A,et al.Betaine supplementation affects the cholesterol but not the lipid profile of pigs[J].European Jou of Lipid Science Technology,2010,112: 295-303.
 - [13] MATTHEWS J O,SOUTHERN L L,BIDNER T D.Estimation of the total sulfur amino acid requirement and the effect of betaine in diets deficie total sulfur amino acids for the weanling pig[J].Animal Science,2001,79: 1557-1565.
 - [14] 余东游,冯杰,许梓荣.甜菜碱对猪不同阶段脂肪和蛋白质代谢的影响[J].中国兽医学报,2001,21(2): 200-203.
 - [15] COMA J,CARRION D,ZIMMERMAN D R.Use of plasma urea nitrogen as a rapid response criterion to determined the lysine requirement of pi [J].Animal Science,1995,73: 472-481.
 - [16] 黄其春.甜菜碱对育肥猪脂肪代谢及其关键酶基因表达的影响与机理研究.博士学位论文.杭州:浙江大学,2006.
 - [17] 余东游,许梓荣.甲基供体促仔猪生长的内分泌机制的探讨[J].中国畜牧杂志,2000,36(5): 8-10.
 - [18] 王明运.激素化学[M].北京:人民卫生出版社,1987.
 - [19] PETER K,ELISABETH J,TOM O N,et al.The role of growth hormone in growth,lipid homeostasis,energy utilization and partitioning in rainbow trout: interactions with leptin,ghrelin and insulin-like growth factor I [J].General and Comparative Endocrinology,2011,11: 1-10.
 - [20] 王敏奇,许梓荣.甜菜碱对生长猪脂肪代谢的影响[J].浙江农业学报,2001,13(6): 339-342.
 - [21] 张冬梅,边连全,安磊旭,等.肉碱与甜菜碱对育肥猪生长性能及脂肪代谢的影响[J].河南农业科学,2009(4): 111-114.
 - [22] 陈剑杰.甜菜碱对猪生长性能,体脂含量的影响及其机理探讨[J].山地农业生物学报,2003,22(5): 452-455.
-
- [1] 王浩,王文梅,许丽,王晓翠.柠檬酸的营养作用及其在断奶仔猪饲养中的应用[J].动物营养学报,2012,24(6): 1007-1012
 - [2] 刘虎传,张敏红,冯京海,姜海龙,杨晓岚,姜礼文,陈燕.益生菌制剂对早期断奶仔猪生长性能和免疫指标的影响[J].动物营养学报,2012,24(6): 1124-1131
 - [3] 吴学壮,张铁涛,崔虎,蒋清奎,高秀华,杨福合,邢秀梅.饲料添加铜水平对育成期水貂生长性能、营养物质消化率及氮代谢的影响[J].动物营养学报,2012,24(6): 1078-1084
 - [4] 曹满湖,汪猜,肖小平,皮灿辉.银杏防御素对仔猪生长性能及免疫指标的影响[J].动物营养学报,2012,24(6): 1119-1123
 - [5] 苏莉娜,王安.饲料锌水平对笼养蛋雏鸭生长性能、抗氧化功能及免疫器官发育的影响 [J].动物营养学报,2012,(5): 815-821
 - 张铁涛,崔虎,杨颖,吴学壮,高秀华,杨福合,邢秀梅.饲料蛋白质水平对育成期母貂生长性能、营养物质消化代谢及血清生化指标的影响 [J].动物营