

2018年12月19日 星期三

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动物营养学报 2012, Vol. 24 Issue (2) :327-333 DOI: 10.3969/j.issn.1006-267x.2012.02.020

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饲料不同能量水平对产蛋初期肉种鸡产蛋性能、蛋品质和蛋组分的影响

田博, 黄芳芳, 徐良梅, 李仲玉, 李建平, 李士平

东北农业大学动物科技学院, 哈尔滨 150030



Level Affects Laying Performance, Egg Quality and Egg Component of during the Early Laying Period

XU Liangmei, LI Zhongyu, LI Jianping, LI Shiping

Technology, Northeast Agricultural University, Harbin 150030, China

摘要

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摘要 本研究旨在研究饲料不同能量水平对爱拔益加(AA)肉种鸡产蛋初期产蛋性能、蛋品质以及蛋组分的影响。试验采用单因子试验设计,选用20周龄体重相近的AA肉种母鸡300羽,随机分为3组,每组5个重复,每个重复20羽。在产蛋率达5%(26周龄)后开始正式试验(27~40周龄),对照组饲喂玉米-豆粕型基础饲料,高能组、低能组饲喂能量水平分别为基础饲料能量120%和80%的饲料,各组均限饲,且饲喂量相同,试验期为98 d。结果表明:1)与对照组相比,高能组和低能组的产蛋率、蛋重显著降低($P<0.05$),低能组合格率显著高于对照组和高能组($P<0.05$),且随着饲料能量水平降低,破蛋率显著降低($P<0.05$)。2)与对照组相比,高能组肉种鸡35、40周龄的蛋黄颜色有显著提高($P<0.05$),低能组无显著变化($P>0.05$),且能量水平对其他蛋品质指标无显著影响($P>0.05$)。3)与对照组相比,在35周龄时,高能组的蛋黄相对重和蛋黄粗脂肪、蛋黄总胆固醇含量显著升高($P<0.05$),蛋黄粗蛋白质、蛋清粗蛋白质、蛋清粗脂肪含量显著降低($P<0.05$);低能组的蛋清相对重、蛋黄总胆固醇含量显著升高($P<0.05$),蛋清粗蛋白质含量显著降低($P<0.05$),各组蛋壳相对重和蛋清干物质、蛋黄干物质含量均无显著差异($P>0.05$)。在40周龄时,高能组的蛋清相对重、蛋壳相对重、蛋黄粗脂肪含量显著升高($P<0.05$),蛋黄相对重、蛋黄粗蛋白质含量显著降低($P<0.05$);低能组的蛋清相对重显著升高($P<0.05$),蛋黄相对重显著降低($P<0.05$);各组蛋清干物质、蛋黄干物质、蛋清粗蛋白质、蛋清粗脂肪、蛋黄总胆固醇含量均无显著差异($P>0.05$)。上述结果表明,在肉种鸡产蛋初期,高能组较高的饲料成本却导致了肉种鸡较差的产蛋性能,低能组的产蛋率虽然低于对照组,但合格率却有明显的优势,而且蛋品质及蛋组分不受影响。因此,低能量饲料可能更有利于生产实践。

关键词: 肉种鸡 饲料能量水平 产蛋性能 蛋品质 蛋组分

Abstract: This experiment was to study the effects of dietary energy level on laying performance, egg quality and egg component of Arbor Acres (AA) broiler breeders during the early laying period. A single factor design was adopted, and 300 AA broiler breeders (20 weeks of age) with similar body weight were randomly divided into 3 groups with 5 replicates per group and 20 birds in each replicate. The experiment was conducted from 27 weeks of age (defined as laying rate reached 5%), and lasted for 98 days. The broilers breeder in the control group were fed a corn-soybean meal based diet, and those in high energy group and low energy group were fed the diets with 120% and 80% energy levels of the basal diet, respectively. During the experiment period, feed intake in each group was restricted and in the same set. The results showed as follows: 1) compared with the control group, laying rate and egg weight in high energy group and low energy group were found to be lower ($P<0.05$), the qualified egg rate in low energy group was significantly higher than that in the control group and high energy group ($P<0.05$), and with the decrease of dietary energy level, the cracked egg rate was significantly lower ($P<0.05$). 2) No effects of dietary energy level on egg quality were found ($P>0.05$) except that yolk color score in high energy group was significantly increased at 35 and 40 weeks of age compared with the control group ($P<0.05$). 3) Compared with the control group, at 35 weeks of age, the relative weight of yolk and the contents of crude fat and total cholesterol in yolk in high energy group were significantly increased ($P<0.05$), but the contents of crude protein, crude fat in egg white and crude protein in yolk were found to be lower ($P<0.05$); the relative weight of egg white and total cholesterol content in yolk in low energy group were significantly higher ($P<0.05$), but crude protein content in egg white was significantly decreased ($P<0.05$); there were no significant differences in the relative weight of eggshell and dry matter content in egg white and yolk among all groups ($P>0.05$). At 40 weeks of age, the relative weight of egg white and eggshell and crude fat content in yolk in high energy group were significantly higher ($P<0.05$), but the relative weight of yolk and crude protein content in yolk were significantly lower ($P<0.05$); the relative weight of egg white in low energy group was significantly higher ($P<0.05$), thus the relative weight of yolk was significantly lower ($P<0.05$); there were no significant differences in the contents of dry matter, crude protein and crude fat in egg white and dry matter and total cholesterol in yolk among all groups ($P>0.05$). In conclusion, during the early laying period, dietary high energy level results in higher cost and worse laying performance of broiler breeders, but dietary lower energy level may improve the qualified egg rate, with no effects on egg quality and egg component. These findings indicate that low-energy diets may be more beneficial in practice than other diets.

Keywords: broiler breeders, dietary energy level, laying performance, egg quality, egg component

收稿日期: 2011-09-30;

基金资助:

第45批中国博士后科学基金(20090451117);黑龙江省教育厅科学技术研究面上项目(11541021);东北农业大学博士启动基金(2009RC28)

通讯作者 徐良梅,副教授,硕士生导师,E-mail: xuliangmei@sohu.com **Email:** xuliangmei@sohu.com

作者简介: 田 博(1988—),男,河南周口人,硕士研究生,从事动物营养调控的研究。E-mail: abcvbg@yahoo.cn

引用本文:

. 饲料不同能量水平对产蛋初期肉种鸡产蛋性能、蛋品质和蛋组分的影响[J]. 动物营养学报, 2012,V24(2): 327-333

. Dietary Energy Level Affects Laying Performance, Egg Quality and Egg Component of Broiler Breeders during the Early Laying Period[J]. Chinese Journal of Animal Nutrition, 2012,V24(2): 327-333.

链接本文:

http://211.154.163.124/Jweb_dwyy/CN/10.3969/j.issn.1006-267x.2012.02.020 或

http://211.154.163.124/Jweb_dwyy/CN/Y2012/V24/I2/327

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