动物营养学报
CHINESE JOURNAL OF ANIMAL NUTRITION

动物营养学报 » 2013, Vol. 25 » Issue (7) :1473-1479 DOI: 10.3969/j.issn.1006-267x.2013.07.011

20~35 kg杜泊×小尾寒羊F1代公羔钙、钠、钾和镁生长需要量

纪守坤[1], 许贵善[1,2], 姜成钢[1], 屠焰[1], 马涛[1], 楼灿[1], 邓凯东[1], 刁其玉[1]

1. 中国农业科学院饲料研究所, 北京 100081;
2. 塔里木大学动物科学学院, 阿拉尔 843300

Growth Requirements of Calcium, Natrium, Kalium and Magnesium for Dorper×Thin-Tailed Han Crossbred Lambs (F1) at 20 to 35 kg

JI Shoukun[1], XU Guishan[1,2], JIANG Chenggang[1], TU Yan[1], MA Tao[1], LOU Can[1], DENG Kaidong[1], DIAO Qiyu[1]

1. Feed Research Institute, Chinese Academy of Agricultural Sciences, Beijing 100081, China;
2. College of Animal Science, Tarim University, Alar 843300, China

- 摘要
- 参考文献
- 相关文章

Download: PDF (1020KB) HTML (1KB) Export: BibTeX or EndNote (RIS) Supporting Info

摘要 本试验旨在探讨20~35 kg杜泊×小尾寒羊F1代杂交公羔羊钙、钠、钾、镁生长需要量。采用比较屠宰试验,分别在羔羊体重20、28和35 kg时屠宰,测定动物体组织器官的钙、钠、钾、镁含量,建立数学模型对体内矿物质含量变化规律及需要量进行预测。结果显示,羔羊在20~35 kg体重阶段,肌肉生长速度较稳定,骨骼生长速度逐渐减慢,而体内脂肪组织在迅速增加;羔羊体内矿物质含量与空腹体重(EBW)具有高度相关性(R^2=0.84~0.98),钙、钠、钾、镁净生长需要量(NRG)预测公式分别为$NRG_{Ca}=15.26EBW^{-0.171}$,$NRG_{Na}=1.67EBW^{-0.085}$,$NRG_{K}=1.94EBW^{0.023}$和$NRG_{Mg}=0.34EBW^{0.051}$。由此可计算得出,杜泊×小尾寒羊F1代羔羊在20~35 kg阶段,以空腹体增重(EBG)表示,机体钙、钠、钾、镁的NRG分别为8.56~ 9.36 g/kg EBG 、1.15~1.20 g/kg EBG、2.07~2.09 g/kg EBG和0.39~0.40 g/kg EBG;以体增重(BWG)表示,分别为7.18~8.18 g/kg BWG、0.96~1.05 g/kg BWG、1.76~1.81 g/kg BWG和0.34 g/kg BWG。

关键词: 育肥羔羊 矿物质 组织生长 需要量 比较屠宰

Abstract: This experiment was conducted to investigate the growth requirements of calcium, natrium, kalium and magnesium for Dorper×Thin-tailed Han crossbred lamb (F1) at 20 to 35 kg. A comparative slaughter trial was used and the lambs were slaughtered at 20, 28 and 35 kg; the contents of calcium, natrium, kalium and magnesium in tissues and organs were determined and mathematical models for predicting mineral requirements were established. The results showed that at the body weight of lambs from 20 to 35 kg, the growth rate of muscle, bone and body fat tissues maintained stable, decreased and increased, respectively, Body mineral contents were highly correlated with empty body weight (EBW) (R^2=0.84 to 0.98), and the equations for predicting net growth requirement (NRG) of minerals were: $NRG_{Ca}=15.26?EBW^{-0.171}$, $NRG_{Na}=1.67?EBW^{-0.085}$, $NRG_{K}=1.94?EBW^{0.023}$ and $NRG_{Mg}=0.34?EBW^{0.051}$. It is calculated that the Dorper×Thin-tailed Han crossbred lamb (F1) at 20 to 35 kg, the NRG of calcium, natrium, kalium and magnesium expressed as empty body weight gain (EBG) were 8.56 to 9.36 g/kg EBG, 1.15 to 1.20 g/kg EBG, 2.07 to 2.09 g/kg EBG and 0.39 to 0.40 g/kg EBG, and expressed as body weight gain (BWG) were 7.18 to 8.18 g/kg BWG, 0.96 to 1.05 g/kg BWG, 1.76 to 1.81 g/kg BWG and 0.34 g/kg BWG.

Keywords: fattening lamb, minerals, tissue growth, requirement, comparative slaughter

收稿日期: 2013-01-04;

基金资助:

国家现代农业肉羊产业技术体系专项资金资助(CARS-39)

通讯作者 刁其玉,研究员,博士生导师,E-mail: diaoqiyu@caas.cn

引用本文:
纪守坤, 许贵善, 姜成钢等 . 20~35 kg杜泊×小尾寒羊F1代公羔钙、钠、钾和镁生长需要量[J]. 动物营养学报, 2013,V25(7): 1473-1479

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
纪守坤
许贵善
姜成钢
屠焰
马涛
楼灿
邓凯东
刁其玉

JI Shoukun, XU Guishan, JIANG Chenggang etc . Growth Requirements of Calcium, Natrium, Kalium and Magnesium for Dorper×Thin-Tailed Han Crossbred Lambs (F1) at 20 to 35 kg[J]. Chinese Journal of Animal Nutrition, 2013,V25(7): 1473-1479.

[1] 刁其玉.肉羊饲养实用技术[M].北京:中国农业科学技术出版社,2009.

[2] DAVID G.绵羊矿物质营养研究的最新进展及其对中国养羊生产可能产生的影响[J].动物营养学报,1998,10(1):1-11.

[3] 许贵善,刁其玉,纪守坤,等.不同饲喂水平对肉用绵羊生长性能、屠宰性能及器官指数的影响[J].动物营养学报,2012,24(5):953-960.

[4] GOMES R A,OLIVEIRA-PASCOA D,TEIXEIRA I A M A.Macromineral requirements for growing Saanen goat kids[J].Small Ruminant Research,2011,99:160-165.

[5] ARAUJO M J,MEDEIROS A N,TEIXEIRA I A M A.Mineral requirements for growth of Moxoto goats grazing in the semi-arid region of Brazil[J].Small Ruminant Research,2010,93:1-9.

[6] BELLOF G,PALLAUF J.Deposition of major elements in the body of growing lambs of the German Merino Landsheep breed[J].Small Ruminant Research,2006,73:186-193.

[7] 王金文,王德芹,张果平,等.杜泊绵羊与小尾寒羊杂交肥羔肉质特性的研究[J].中国畜牧杂志,2007,43(3):4-6.

[8] 王金文,崔绪奎,张果平,等.杜泊绵羊与小尾寒羊杂种优势利用研究[J].山东农业科学,2009(1):103-106.

[9] 初汉平.杜泊羊和小尾寒羊杂一代羔羊与小尾寒羊羔羊生长性能、屠宰性能及肉品品质的比较[J].畜牧与兽医,2012,44(3):46-48.

[10] FRENANDES M H M R,RESENDE K T,TEDESCHI L O.Energy and protein requirements for maintenance and growth of Boer crossbred kids [J].Journal of Animal Science,2007,85:1014-1023.

[11] GALVANI D B,PIRES C C,KOZLOSKI G V,et al.Energy requirements of Texel crossbred lambs[J].Journal of Animal Science,2008,86:3480-3490.

[12] GALVANI D B,PIRES C C,KOZLOSKI G V,et al.Protein requirements of Texel crossbred lambs[J].Small Ruminant Research,2009,81:55-62.

[13] BURTON J H,REID J T.Interrelationships among energy input,body size,age and body composition of sheep[J].The Journal of Nutrition,1968,97:517-524.

[14] LAWRENCE T L J,FOWLER V R.Growth of farm animals[M].2nd ed.Wallingford:CAB International,1997.

[15] 杨凤.动物营养学[M].北京:中国农业出版社,2002.

[16] ELDMAN I S,BODEN A H,MOORE F D.Electrolyte composition of bone and the penetration of radiosodium and deuterium oxide into dog and human bone[J].Journal of Clinical Investigation,1954,33:122-131.

[17] NRC.Nutrient requirements of dairy cattle[M].7th ed.Washington,D.C.:National Academy Press,2001.

[18] BELLOF G,MOST E,PALLAUF J.Concentration of Ca,P,Mg,Na and K in muscle,fat and bone tissue of lambs of the breed German Merino Landsheep in the course of the growing period[J].Journal of Animal Physiology and Animal Nutrition,2006,90:385-393.

[19] SUTTLE N F.Mineral nutrition of livestock[M].4th ed.New York:CABI Publishing,2010.

[20] INRA.Ruminant nutrition:recommended allowances and feed tables[M].Paris:John Libbey & Co.,Ltd.,1989.

[21] AHMED M M M,SIHAM A K,BARRI M E S.Macromineral profile in the plasma of Nubian goats as affected by the physiological state[J].Small Ruminant Research,2000,38:249-254.

[1] 赵敏孟，杨在宾，杨维仁，姜淑贞，张桂国，朱文广，张吉林，巩峰.杜泊羊生长期能量的代谢规律和需要量[J]. 动物营养学报，2013,25(6): 1243-1250

[2] 马维英，王爽，黄江南，沈军达，徐翼虎，陶争荣，田勇，卢立志，林映才.饲粮胆碱添加水平对产蛋期绍兴鸭产蛋性能、蛋品质、生殖器官发育的影响[J]. 动物营养学报，2013,25(6): 1307-1314

[3] 袁超，徐志刚，蒋媛婧，严华祥，马婷，邹晓庭.新杨绿壳蛋鸡育成期能量和蛋白质的需要量[J]. 动物营养学报，2013,25(4): 735-742

[4] 杨原志，吴业阳，董晓慧，谭北平，杨奇慧，迟淑艳，刘泓宇.方斑东风螺饲料中锌需要量的研究[J]. 动物营养学报，2013,25(3): 643-650

[5] 洪平，蒋守群，周桂莲，蒋宗勇，林映才，郑春田，陈芳.43～63日龄黄羽肉鸡钙需要量研究[J]. 动物营养学报，2013,25(2): 299-309

[6] 王波，闵芝智，王永伟，王宁，黄春喜，袁建敏，闪于明.1~21日龄雌性肉仔鸡表观回肠可消化色氨酸需要量评定[J]. 动物营养学报，2012,24(9): 1664-1673

[7] 王惠，王永军，周利勇，梁铁刚，田秀娥，陈玉林，屈雷，杨雨鑫，陈晓强.空怀期陕北白绒山羊的能量需要量[J]. 动物营养学报，2012,24(9): 1694-1700

[8] 李瑞丽，张微，任婉丽，宋泽和，宋先忱，李丰田.辽宁绒山羊空怀母羊能量需要量[J]. 动物营养学报，2012,24(9): 1701-1706

[9] 苏月娟，孙会，王晓宇，许雪魁，程传锋，秦贵信.30~60 kg生长猪磷需要量研究[J]. 动物营养学报，2012,24(8): 1414-1420

[10] 张建华，戴求仲，蒋桂韬，王照群，林谦，张旭.1~3周龄黑羽公番鸭代谢能和粗蛋白质需要量的研究[J]. 动物营养学报，2012,24(8): 1469-1476

[11] 马新燕，吕林，解竞静，张丽阳，罗绪刚.肉鸡铁营养需要量的研究进展 [J]. 动物营养学报，2012,24(7): 1193-1200

[12] 王晓宇，孙会，苏月娟，许雪魁，程传锋，秦贵信.30~60 kg生长猪钙需要量研究 [J]. 动物营养学报，2012,24(7): 1216-1223

[13] 赵鑫，邵涛，王亚琴，罗锦标，陈维虎，孙红霞，周卫东.维生素、矿物质与能量蛋白质水平对浙东白鹅母鹅繁殖性能、血液生殖激素浓度及生殖轴相关基因mRNA相对表达量的影响[J]. 动物营养学报，2012,24(6): 1110-1118

[14] 阮栋，蒋守群，周桂莲，陈芳，洪平.43~63日龄黄羽肉鸡核黄素需要量研究[J]. 动物营养学报，2012,24(4): 638-645

[15] 唐静，谢明，侯水生，黄苇，喻俊英.1~21日龄不同性别北京鸭核黄素需要量的估测[J]. 动物营养学报，2012,24(4): 661-668