

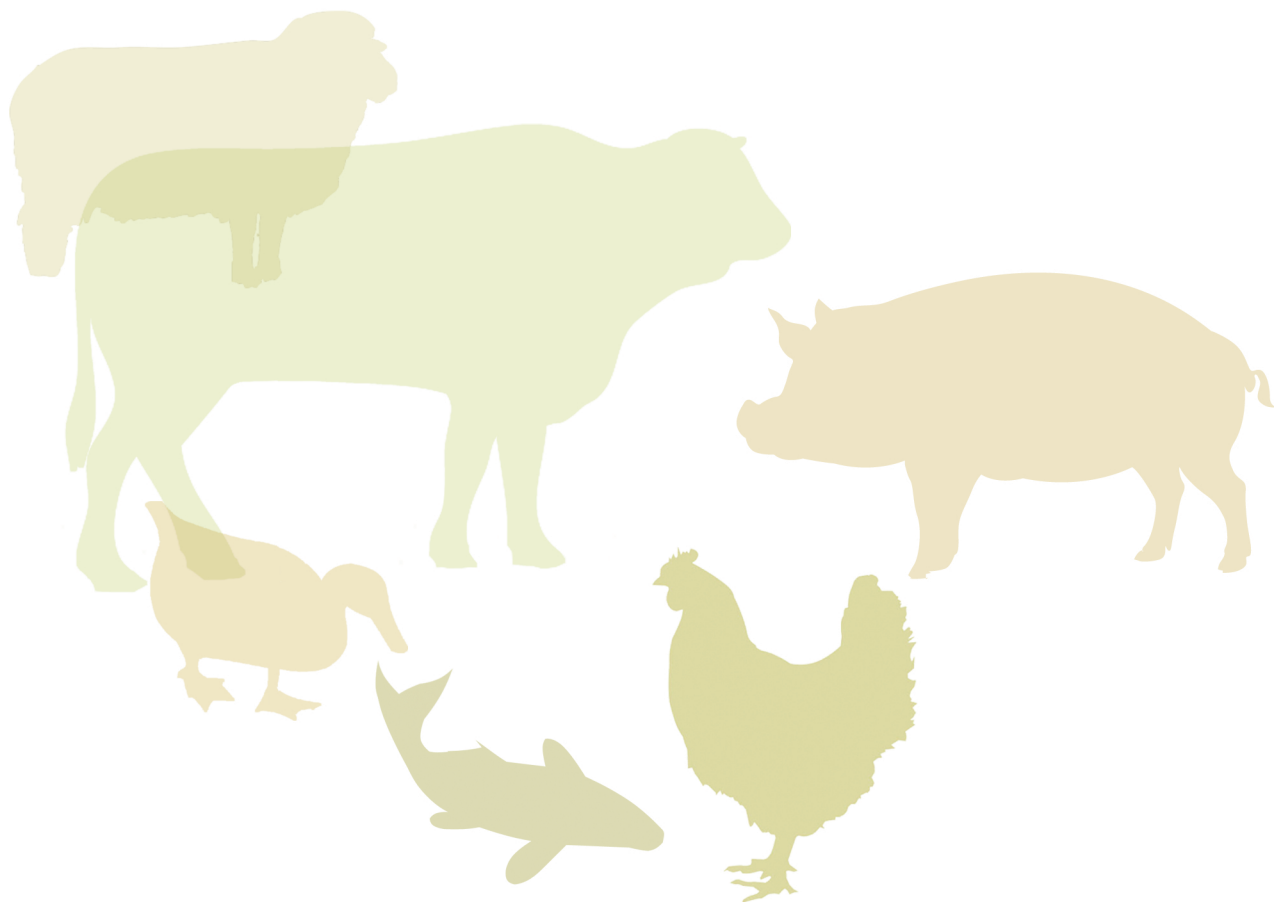


ISSN 1006-267X
CN 11-5461/S

动物营养学报

CHINESE JOURNAL OF ANIMAL NUTRITION

www.ChinaJAN.com



Vol.30 No.10
2018

中国畜牧兽医学会
CHINESE ASSOCIATION OF
ANIMAL SCIENCE AND VETERINARY MEDICINE

万方数据

动物
营养
学报

第三
十卷

第十
期

二〇
一八
年

中国
畜牧
兽医
学会

动物营养学报

DONGWU YINGYANG XUEBAO

百种中国杰出学术期刊 中国精品科技期刊 中国科学引文数据库(CSCD)核心库来源期刊
中文核心期刊 中国科技核心期刊 中国科学评价研究中心权威期刊(A⁺级)
英国 CAB Abstracts 收录期刊 美国 Chemical Abstracts 收录期刊

第 30 卷 第 10 期 2018 年 10 月

目 次

综述

- 3797 芸苔属饲用作物对反刍动物甲烷减排的作用及机理 孙学钊
3805 黑沙蒿对动物免疫和抗氧化功能的影响及其机制 邢媛媛 史彬林 金 晓 闫素梅
3810 动物氨基酸转运与感知系统研究进展 权素玉 南雪梅 蒋林树 熊本海
3818 α -酮戊二酸的生理功能及其在动物生产中的应用 陈家顺 苏文璇 符晨星 姚 康
3828 饲料纤维对猪肠道屏障功能的影响 冯江鑫 陈代文 余 冰 何 军

- 3836 反刍动物妊娠期骨骼肌发育及营养调控 郑 萍 王 波 罗海玲
3843 金银花提取物在围产期奶牛氧化应激及炎症中的应用前景 李 贞 唐志文 蒋林树 杨 亮 孙福昱

- 3850 益生菌影响动物营养物质消化吸收及肝脏代谢的研究进展 徐 函 吴艳萍 梅小强 李卫芬
3857 植物多糖通过核因子 κ B 及丝裂原活化蛋白激酶/核因子 E2 王丽雪 解玉怀 杨维仁 杨在宾
相关因子2 信号通路发挥抗氧化作用的机制 张桂国
3864 鸟类应激检测方法探讨 李月珠 郭锦心 王 昱 隋金玲

猪营养

- 3875 亚麻油对宁乡猪生长性能、胴体性状和肉品质的影响 郁元年 邢月腾 李晨燕 吴 信
杨志武 刘星亮 曾青华 张 彬

禽营养

- 3882 饲料代谢能水平对笼养蛋鸭产蛋性能、蛋品质和血清生化 黄 璇 李 闯 熊华丽 蒋桂韬
指标的影响 张 旭 王向荣 胡 艳 戴求仲
3889 不同钙水平饲料添加维生素 D₃ 对产蛋后期蛋鸡生产性能、 康 乐 穆雅东 张克英 王建萍
蛋品质、胫骨质量和血浆钙磷代谢的影响 白世平 曾秋凤 彭焕伟 宿卓薇
3899 大午粉 1 号商品代蛋鸡育成后期(10~17 周龄)饲料中适宜 张 蒙 李 强 刘 平 许利军
代谢能和蛋白质水平的研究 苏 坤 王德贺 周荣艳 陈 辉
3914 低温环境对肉鸡生长性能、体温及行为的影响 王雪洁 张敏红 冯京海 厉秀梅
周 莹 邢 爽 马丹丹
3923 持续热应激对黄羽肉鸡生长性能、肉品质和血液指标的影响 钟 光 施寿荣 邵 丹 胡 艳
宋志刚 童海兵
3930 饲料中维生素 B₁₂ 添加水平对 5~15 周龄五龙鹅生长性能、肠道 龙建华 王宝维 孔 敏 张名爱
发育和盲肠菌群结构的影响 岳 斌 葛文华 柯昌娇 刁翠萍
孙玲玲

协 办 单 位

(2018 年度,排名不分先后)

上海美农生物科技股份有限公司 动物营养学国家重点实验室
万方数据 播恩集团管理总部

反刍与草食动物营养

- 3941 补喂硫酸钠、微量元素及其组合对哈萨克孕马 3 种雌激素硫酸盐日排出量的影响 李晓斌 陈 晖 赵 芳 谢景龙
杨菊青 杨开伦
- 3950 甲酸钙和乳酸钙对泌乳奶牛生产性能、乳成分、血液生化指标及钙磷代谢的影响 张 舒 卢 娜 王雅晶 邵 伟
李胜利 母智深
- 3958 饲料消化能和可消化粗蛋白质水平对燕山绒山羊营养物质表观消化率的影响 张继伟 李振林 翟 刚 高 昆
张英杰 刘月琴 段春辉
- 3968 瘤胃保护性色氨酸饲料中添加亚叶酸钙对绵羊血浆色氨酸、犬尿氨酸和褪黑素含量的影响 王 根 陈 晖 赵 芳 高 超
赵国栋 李晓斌 马 晨 杨开伦
- 3976 不同锌源对湘东黑山羊生长性能及羊奶的成分、氨基酸和脂肪酸含量的影响 郑梦莉 李四元 张佩华 陈 东
王凯军 颜琼娴 周传社

水产营养

- 3985 湘云鲫饲料中磷酸二氢钙的适宜添加量 王 双 罗 莉 石亚庆 唐 毅
李战福 李伟龙 罗 浩
- 3993 周期性饥饿再投喂对虎斑乌贼幼体生长性能、抗氧化指标、消化酶活性、氨基酸组成和脂肪酸组成的影响 李晨晨 朱婷婷 陆 游 罗嘉翔
金 敏 袁 野 周歧存

特种经济动物营养

- 4005 饲料维生素 B₂添加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 穆琳琳 钟 伟 张海华 南韦肖
张新宇 陈双双 李光玉
- 4012 饲料添加维生素 E 和硒对育成期水貂生长性能、营养物质消化率及血清生化指标的影响 张 婷 杨雅涵 李仁德 王 静
刘可园 刘学庆 郭肖兰 李光玉

分子营养

- 4020 表皮生长因子对脂多糖刺激断奶仔猪肠道钠磷转运载体蛋白 II b 表达的影响 汤小朋 徐 荣 李成良 彭 鹏
禹琪芳 方热军
- 4028 降解不同牧草的瘤胃细菌群落多样性研究 徐 俊 邬 磊 陈庆隆 胡丽芳
侯玉洁 赵国琦 孙建勇 吴斯骏
周瑶敏
- 4037 瘤胃保护性 5-羟基色氨酸对绵羊胃肠道内容物和血浆中 5-羟基色氨酸、褪黑素含量的影响 赵 芳 陈 晖 王 根 高 超
赵国栋 马 晨 杨开伦
- 4048 基于 16S rDNA 高通量测序分析技术研究甘露寡糖对奶牛瘤胃菌群结构的影响 郭婷婷 胡丹丹 付子琳 李 娜
徐晓锋
- 4059 基于 16S rRNA 测序分析奶牛体外发酵中瘤胃细菌多样性的变化 李焯青 奚雨萌 曾涵芳 张 林
陈孟姣 韩兆玉
- 4071 高通量测序技术分析蓝狐肠道菌群多样性 陈双双 司华哲 穆琳琳 李光玉
刘晗璐
- 4081 苏氨酸对大鼠小肠上皮细胞系 IEC-6 细胞活性和紧密连接蛋白表达的影响 任 曼 黄金歌 靳二辉 车传燕
胡倩倩 周金星 李升和

实验方法

- 4087 猪肝、牛肉、羊肉中 5 种 β -受体激动剂残留的超高效液相色谱-串联质谱分析方法的建立 张苏珍 王益军 田 蕴 贺 燕
葛 敏

饲料营养

- 4095 酵母硒和苜蓿素联用对产蛋后期蛋鸡蛋品质、抗氧化能力和胆固醇代谢的影响 杨 玉 孙 煜 孙宝盛 卢营杰
李建慧 张俊珍

4105	围产期母猪饲料中添加壳寡糖对母猪、仔猪免疫功能及母猪肠道微生物的影响	柴启恩 刘 霜	肖俊峰 温庆琪	张 军	赵 海
4113	猪胎盘粉对哺乳母猪繁殖性能、血清免疫和生殖激素指标及乳成分影响	张尚卫	黄大鹏		
4121	牛磺酸对早期断奶仔猪生长性能和肠道健康的影响	马娅君 唐志如	张小龙	陈庆菊	卢昌文
4132	饲料添加鱼油对蛋鸡免疫机能的影响	龙 烁 王 晶	武书庚 齐广海	崔闯飞 马友彪	张海军 杨林林
4143	黄芪多糖和丁酸梭菌对蛋雏鸭免疫性能、抗氧化性能以及肠道形态的影响	赵文文 王 源	袁文华 李国勤	沈军达 卢立志	袁慧坤 刁新平
4151	不同铁添加水平饲料中添加枯草芽孢杆菌对雏鹅生长性能、造血功能、铁代谢和肾脏功能的影响	刁翠萍 史雪萍	王宝维 柯昌娇	葛文华 龙建华	张名爱
4161	不同锌添加水平饲料中添加枯草芽孢杆菌对肉鹅生长性能、屠宰性能、肉品质和养分利用率的影响	柯昌娇 岳 斌	王宝维 龙建华	葛文华 刁翠萍	张名爱
4172	饲料中添加复合酶制剂对奶牛瘤胃发酵、营养物质表观消化率和生产性能的影响	赵连生 卜登攀	王 典 刘 威	王有月 郑 琛	陈雅坤 郭江鹏
4181	牛至油对绵羊瘤胃发酵特性及饲料营养物质瘤胃降解率的影响	张 然 班志彬	郑 琛 杨华明	闫晓刚	梁 浩
4190	乙醇梭菌蛋白替代豆粕对草鱼生长性能、血浆生化指标及肝胰脏和肠道组织病理的影响	魏洪城 邹方起 梁旭方	郁欢欢 陈 沛 薛 敏	陈晓明 郑银桦	晁 伟 吴秀峰

饲料资源开发

4202	苜蓿替代不同比例苜蓿对波尔山羊生长性能、血清生化指标及养分表观消化率的影响	魏金涛 张乃锋	郭万正 刁其玉	杨雪海	陈 芳
4210	大黑山薏苡草粉替代苜蓿草粉对生长肉兔肠道形态、消化酶活性及盲肠发酵参数的影响	田 刚 陈代文	鲁院院 罗玉衡	余 冰 蔡景义	曾绘锦
4219	富锌微生物的筛选及其饲喂鸡的生物学效价评定	卫爱莲 刁 欢	代张超 闫一博	鲁 陈 李吕木	丁小玲

研究简报

4229	沙子岭猪脂联素及其相关基因的 mRNA 和蛋白表达发育性变化规律	陈宇光	秦龙山	贺 喜	
4237	叶绿醇对小鼠骨骼肌代谢酶活性和肌纤维类型的影响	林厦菁	束 刚	朱晓彤	
4244	发酵饲料对育肥猪生长性能、胴体性状、肉品质、血清生化指标和代谢产物的影响	朱 坤 高文军	毛胜勇	朱崇森	马瑞雪
4251	巴氏杀菌 β-内酰胺类抗奶对犊牛生长和胃肠道发育的影响	辛小月 王 璐	曲永利 殷术鑫	袁 雪 张 帅	高 岩
4262	糖皮质激素对鸡胚肝细胞脂肪和胆汁酸代谢相关基因表达的影响	周华金 郝洋洋	杨家昶 杜 鹏	张 辉 宋志刚	王继光
4269	黑曲霉固态发酵改善茶渣营养价值研究	朱 飞 张子军	苏 娣 刘政权	冉 雷 宛晓春	范彩云 程建波

CONTENTS

REVIEW

- 3797 Mitigation of Methane Emissions with Forage Brassicas in Ruminants and Possible Mechanisms
- 3805 *Artemisia ordosica* Affects Immune and Antioxidative Function of Animals and Its Mechanism
- 3810 Advances in Animal Amino Acid Transporting and Sensing System
- 3818 Physiological Function of Alpha-Ketoglutarate and Its Application in Animal Production
- 3828 Effect of Dietary Fiber on Intestinal Barrier Function in Pigs
- 3836 Skeletal Muscle Development and Nutritional Regulation during Gestation Period in Ruminant Animals
- 3843 Application Prospect of Honeysuckle Extract on Oxidative Stress and Inflammation in Perinatal Cows
- 3850 Research Progress of Probiotics Effects on Animal Digestion, Absorption and Liver Metabolism of Nutrients
- 3857 Plant Polysaccharides: Mechanism of Anti-Oxidant Action through Nuclear Factor κ B and Mitogen-Activated Protein Kinase/Nuclear Factor Erythroid 2-Related Factor 2 Signaling Pathways
- 3864 Discussion on Measuring Methods of Stress in Birds

SWINE NUTRITION

- 3875 Effects of Linseed Oil on Growth Performance, Carcass Traits and Meat Quality of *Ningxiang* Pigs

POULTRY NUTRITION

- 3882 Effects of Dietary Metabolizable Energy Level on Laying Performance, Egg Quality and Serum Biochemical Indices of Cage-Rearing Laying Ducks
- 3889 Effects of Different Calcium Level Diets Supplemented with Vitamin D₃ on Performance, Egg Quality, Tibia Quality and Plasma Calcium and Phosphorus Metabolism of Laying Hens in Late Laying Period
- 3899 Study on Optimal Dietary Metabolizable Energy and Protein Levels of *Dawufen* No.1 Commercial-Layer in Later Growing Period (10 to 17 Weeks of Age)
- 3914 Effects of Low Ambient Temperature on Growth Performance, Body Temperature and Behavior of Broilers
- 3923 Effects of Persistent Heat Stress on Growth Performance, Meat Quality and Blood Indexes on Yellow-Feathered Broilers
- 3930 Effects of Vitamin B₁₂ Supplemental Level on Growth Performance, Intestinal Development and Microflora Structure in Cecum of *Wulong* Geese Aged from 5 to 15 Weeks

SUN Xuezhao

XING Yuanyuan, SHI Binlin, JIN Xiao, YAN Sumei

QUAN Suyu, NAN Xuemei, JIANG Linshu, XIONG Benhai

CHEN Jiashun, SU Wenxuan, FU Chenxing, YAO Kang

FENG Jiangxin, CHEN Daiwen, YU Bing, HE Jun, ZHENG Ping

LI Zhen, WANG Bo, LUO Hailing

TANG Zhiwen, JIANG Linshu, YANG Liang, SUN Fuyu, XIONG Benhai

XU Han, WU Yanping, MEI Xiaoqiang, LI Weifen

WANG Lixue, XIE Yuhuai, YANG Weiren, YANG Zaibin, ZHANG Guiguo

LI Yuezhu, GUO Jinxin, WANG Yu, SUI Jinling

YU Yuannian, XING Yueteng, LI Chenyan, WU Xin, YANG Zhiwu, LIU Xingliang, ZENG Qinghua, ZHANG Bin

HUANG Xuan, LI Chuang, XIONG Huali, JIANG Guitao, ZHANG Xu, WANG Xiangrong, HU Yan, DAI Qiu-zhong

KANG Le, MU Yadong, ZHANG Keying, WANG Jianping, BAI Shiping, ZENG Qiefeng, PENG Huanwei, SU Zhuowei, XUAN Yue, DING Xuemei

ZHANG Meng, LI Qiang, LIU Ping, XU Lijun, SU Kun, WANG Dehe, ZHOU Rongyan, CHEN Hui

WANG Xuejie, ZHANG Minhong, FENG Jinghai, LI Xiumei, ZHOU Ying, XING Shuang, MA Dandan

ZHONG Guang, SHI Shourong, SHAO Dan, HU Yan, SONG Zhigang, TONG Haibing

LONG Jianhua, WANG Baowei, KONG Min, ZHANG Ming'ai, YUE Bin, GE Wenhua, KE Changjiao, DIAO Cuiping, SUN Lingling

SUPPORTED FROM

(2018, in no particular order)

Shanghai Menon Animal Nutrition Technology Co., Ltd.

万方数据

State Key Laboratory of Animal Nutrition

The Management Headquarter of Boen Corporation

RUMINANT AND HERBIVORE NUTRITION

- 3941 Effects of Supplemental Feeding Sodium Sulfate, Trace Elements and Their Combination on Three Kinds of Estrogen Sulfate Daily Outputs of Kazak Pregnancy Horses
- 3950 Effects of Calcium Formate and Calcium Lactate on Performance, Milk Composition, Blood Biochemical Indices, Calcium and Phosphorus Metabolism of Lactating Dairy Cows
- 3958 Effects of Dietary Digestible Energy and Digestible Crude Protein Levels on Nutrient Apparent Digestibility of *Yanshan* Cashmere Goats
- 3968 Effects of Adding Calcium Folate in Rumen Protected Tryptophan Diets on Plasma Tryptophan, Kynurenine and Melatonin Contents in Sheep
- 3976 Effects of Different Zinc Sources on Growth Performance of *Xiangdong* Black Goat and Composition, Amino Acid and Fatty Acid Contents of Goat Milk

AQUACULTURE NUTRITION

- 3985 Optimal Supplemental Level of Monocalcium Phosphate in Diets for Triploid Crucian Carp
- 3993 Effects of Periodical Starvation-Refeeding on Growth Performance, Antioxidant Indices, Digestive Enzyme Activities, Amino Acid Composition and Fatty Acid Composition of Juvenile *Sepia pharaoni*

SPECIAL ECONOMIC ANIMAL NUTRITION

- 4005 Effects of Dietary Vitamin B₂ Level on Growth Performance, Nutrient Digestibilities and Nitrogen Metabolism of Growing Minks
- 4012 Effects of Dietary Vitamin E and Selenium on Growth Performance, Nutrient Digestibility and Serum Biochemical Indices of Growing Minks (*Mustela vison*)

MOLECULAR NUTRITION

- 4020 Effects of Epidermal Growth Factor on Intestinal Type II b Sodium-Phosphate Cotransporter Expression of Weaned Piglets Challenged by Lipopolysaccharide
- 4028 Diversity of Ruminal Bacterial Communities in Different Forages Degradation
- 4037 Effects of Rumen Protected 5-Hydroxytryptophan on Contents of 5-Hydroxytryptophan, Melatonin in Gastrointestinal Tract Digesta and Plasma of Sheep
- 4048 Effects of Mannan Oligosaccharides on Rumen Microflora Structure of Dairy Cows Based on 16S rDNA High-Throughput Sequencing Technology
- 4059 Diversity Changes of Bacterial Community in Rumen of Dairy Cows *in Vitro* Fermentation Analyzed by 16S rRNA Sequencing Technology
- 4071 Analysis of Intestinal Microbiota Diversity of Blue Foxes by High-Throughput Sequencing Technology
- 4081 Effects of Threonine on Activity and Tight Junction Protein Expression of Rat Intestinal Epithelia Cell Line IEC-6 Cell

EXPERIMENTAL METHODS

- 4087 UPLC-MS/MS Method for the Determination of Five β -agonists Residue in Pork Liver, Beef and Mutton

FEED SCIENCE AND TECHNOLOGY

- 4095 Effects of Combination of Selenium Yeast and Polysavone on Egg Quality, Antioxidant Ability and Cholesterol Metabolism of Hens during Late Period of Laying

LI Xiaobin, CHEN Hui, ZHAO Fang, XIE Jinglong, YANG Juqing, YANG Kailun
ZHANG Shu, LU Na, WANG Yajing, SHAO Wei, LI Shengli, MU Zhishen

ZHANG Jiwei, LI Zhenlin, ZHAI Gang, GAO Kun, ZHANG Yingjie, LIU Yueqin, DUAN Chunhui
WANG Gen, CHEN Hui, ZHAO Fang, GAO Chao, ZHAO Guodong, LI Xiaobin, MA Chen, YANG Kailun
ZHENG Mengli, LI Siyuan, ZHANG Peihua, CHEN Dong, WANG Kaijun, YAN Qiongqian, ZHOU Chuanshe

WANG Shuang, LUO Li, SHI Yaqing, TANG Yi, LI Zhanfu, LI Weilong, LUO Hao
LI Chenchen, ZHU Tingting, LU You, LUO Jiaxiang, JIN Min, YUAN Ye, ZHOU Qicun

MU Linlin, ZHONG Wei, ZHANG Haihua, NAN Weixiao, ZHANG Xinyu, CHEN Shuangshuang, LI Guangyu
ZHANG Ting, YANG Yahan, LI Rende, WANG Jing, LIU Keyuan, LIU Xueqing, GUO Xiaolan, LI Guangyu

TANG Xiaopeng, XU Rong, LI Chengliang, PENG Peng, YU Qifang, FANG Rejun
XU Jun, WU Lei, CHEN Qinglong, HU Lifang, HOU Yujie, ZHAO Guoqi, SUN Jianyong, WU Sijun, ZHOU Yaomin
ZHAO Fang, CHEN Hui, WANG Gen, GAO Chao, ZHAO Guodong, MA Chen, YANG Kailun
GUO Tingting, HU Dandan, FU Zilin, LI Na, XU Xiaofeng

LI Yeqing, XI Yumeng, ZENG Hanfang, ZHANG Lin, CHEN Mengjiao, HAN Zhaoyu
CHEN Shuangshuang, SI Huazhe, MU Linlin, LI Guangyu, LIU Hanlu
REN Man, HUANG Jin'ge, JIN Erhui, CHE Chuanyan, HU Qianqian, ZHOU Jinxing, LI Shenghe

ZHANG Suzhen, WANG Yijun, TIAN Yun, HE Yan, GE Min

YANG Yu, SUN Yu, SUN Baosheng, LU Yingjie, LI Jianhui, ZHANG Junzhen

- 4105 Effects of Dietary Chito-Oligosaccharide for Perinatal Sows on Immune Function of Sows and Newborn Piglets, Intestinal Microorganisms of Sows
- 4113 Effects of Pig Placental Powder on Reproductive Performance, Serum Immune and Reproductive Hormone Indexes and Milk Composition of Lactating Sows
- 4121 Effects of Taurine on Growth Performance and Intestinal Health of Early-Weaned Piglets
- 4132 Effects of Dietary Fish Oil on Immune Function of Laying Hens
- 4143 Effects of *Astragalus* Polysaccharides and *Clostridium butyricum* on Immune Function, Antioxidant Ability and Intestinal Morphology of Laying Ducklings
- 4151 Effects of *Bacillus subtilis* Supplementation in Different Iron Supplemental Level Diets on Growth Performance, Hematopoiesis Function, Iron Metabolism and Kidney Function of Goslings
- 4161 Effects of *Bacillus subtilis* Supplementation in Different Zinc Supplemental Level Diets on Growth Performance, Slaughter Performance, Meat Quality and Nutrient Utilization of Meat Geese
- 4172 Effects of Compound Enzyme Preparation on Rumen Fermentation, Apparent Digestibility of Nutrients and Performance of Lactating Cows
- 4181 Effects of Oregano Essential Oil on Ruminal Fermentation Characteristics and Ruminal Degradability of Diet Nutrients in Sheep
- 4190 Effects of Soybean Meal Replaced by *Clostridium autoethanogenum* Protein on Growth Performance, Plasma Biochemical Indexes and Hepatopancreas and Intestinal Histopathology of Grass Carp (*Ctenopharyngodon idllus*)

FEED RESOURCES DEVELOPMENT

- 4202 Effects of Ramie Substituting Different Ratios of Alfalfa on Growth Performance, Serum Biochemical Indexes and Nutrient Apparent Digestibility of Boer Goats
- 4210 Effects of Dietary Replacement of Alfalfa Meal by *Coix lacryma-jobi* cv. Daheishan Meal on Intestinal Morphology, Digestive Enzyme Activities and Cecal Fermentation Parameters of Growing Meat Rabbits
- 4219 Screening of Zinc-Enriched Microorganism and Its Relative Biological Value for Chickens

SHORT COMMUNICATIONS

- 4229 Developmental Changes on Related Gene and Protein Expression of Adiponectin of *Shaziling* Pigs
- 4237 Effects of Phytol on Metabolic Enzyme Activity of Skeletal Muscle and Muscle Fiber Type of Mice
- 4244 Effects of Fermented Feed on Growth Performance, Carcass Traits, Meat Quality, Serum Biochemical Indicators and Metabolites of Finishing Pigs
- 4251 Effects of Pasteurized β -Lactam Antibiotic Milk on Growth and Development of Gastrointestinal Tract of Calves
- 4262 Effects of Glucocorticoids on Expression of Lipid and Bile Acid Metabolism Related Genes in Chicken Embryo Hepatocytes
- 4269 Nutritional Improvement of Tea Residue by Solid-State Fermentation with *Aspergillus niger*

万方数据

QI Qien, XIAO Junfeng, ZHANG Jun, ZHAO Hai, LIU Shuang, WEN Qingqi

ZHANG Shangwei, HUANG Dapeng

MA Yajun, ZHANG Xiaolong, CHEN Qingju, LU Changwen, TANG Zhiru LONG Shuo, WU Shugeng, CUI Chuangfei, ZHANG Haijun, WANG Jing, QI Guanghai, MA Youbiao, YANG Linlin

ZHAO Wenwen, YUAN Wenhua, SHEN Junda, YUAN Huikun, WANG Yuan, LI Guoqin, LU Lizhi, DIAO Xinpeng
DIAO Cuiping, WANG Baowei, GE Wenhua, ZHANG Ming'ai, SHI Xueping, KE Changjiao, LONG Jianhua

KE Changjiao, WANG Baowei, GE Wenhua, ZHANG Ming'ai, YUE Bin, LONG Jianhua, DIAO Cuiping

ZHAO Liansheng, WANG Dian, WANG Youyue, CHEN Yakun, BU Dengpan, LIU Wei, ZHENG Chen, GUO Jiangpeng
ZHANG Ran, ZHENG Chen, YAN Xiaogang, LIANG Hao, BAN Zhibin, YANG Huaming

WEI Hongcheng, YU Huanhuan, CHEN Xiaoming, CHAO Wei, ZOU Fangqi, CHEN Pei, ZHENG Yinhua, WU Xifeng, LIANG Xufang, XUE Min

WEI Jintao, GUO Wanzheng, YANG Xuehai, CHEN Fang, ZHANG Naifeng, DIAO Qiyu

TIAN Gang, LU Yuanyuan, YU Bing, ZENG Huijin, CHEN Daiwen, LUO Yuheng, CAI Jingyi

WEI Ailian, DAI Zhangchao, LU Chen, DING Xiaoling, DIAO Huan, YAN Yibo, LI Lyumu

CHEN Yuguang, QIN Longshan, HE Xi

LIN Xiajing, SHU Gang, ZHU Xiaotong

ZHU Kun, MAO Shengyong, ZHU Chongmiao, MA Ruixue, GAO Wenjun

XIN Xiaoyue, QU Yongli, YUAN Xue, GAO Yan, WANG Lu, YIN Shuxin, ZHANG Shuai

ZHOU Huajin, YANG Jiachang, ZHANG Hui, WANG Jiguang, HAO Yangyang, DU Peng, SONG Zhigang

ZHU Fei, SU Di, RAN Lei, FAN Caiyun, ZHANG Zijun, LIU Zhengquan, WAN Xiaochun, CHENG Jianbo