



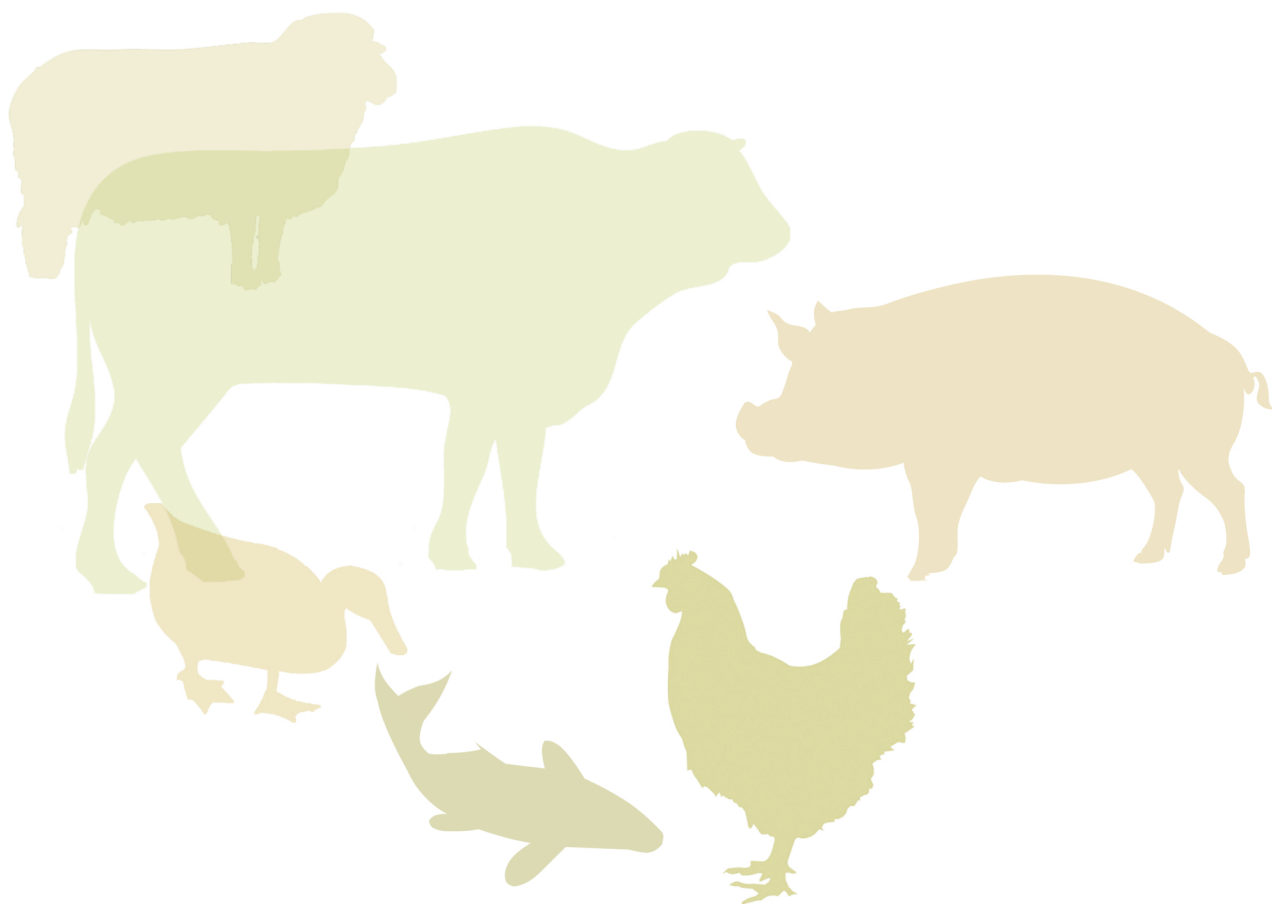
ISSN 1006-267X
CN 11-5461/S

动物
营养
学报

动物营养学报

CHINESE JOURNAL OF ANIMAL NUTRITION

www.ChinaJAN.com



第三十卷

第十二期

二〇一八年

中国畜牧兽医学会

Vol.30 No.12
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

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 12 期 2018 年 12 月

目 次

综述

4769 肠道黏液屏障功能的研究进展	韩菲菲 彭丽媛 张学斐 杨莎莎
4776 芳香烃受体调控肠道炎症的研究进展	韩剑众 李成良 齐广海 彭 鹏 方热军
4786 动物外泌体的生物学功能研究进展	权素玉 南雪梅 蒋林树 熊本海
4792 菊粉的生理功能及其在畜禽生产中的应用	陈佳亿 陈凤鸣 欧淑琦 赵玉蓉
4799 胍基乙酸的生理作用和机理及其在肉鸡、猪生产方面的应用	班 博 蒋庆友 杨 泰 田科雄
4806 菜籽油对蛋鸡生产性能、蛋品质的影响及机理的探索	袁 宁 王建萍 丁雪梅 白世平
4813 色氨酸的来源、代谢途径及其在家禽生产上的应用	张克英 景寒松 徐 森 杨桂芹
4821 高精料饲粮对反刍动物胃肠道微生物区系的影响及调控	柳君辉 董国忠 田 可
4828 早期瘤胃微生物区系发育及其调控	田 可 柳君辉 董国忠
4835 肌球蛋白轻链激酶介导肠黏膜上皮屏障功能变化的研究进展	王梦雅 高 民 徐 明 胡红莲
4842 维生素 A 增强动物抗病毒能力的作用及其机制研究进展	冉智明 陈代文 余 冰 赵 叶
4849 辣木的抗菌消炎作用及其在畜牧生产中的应用	李晓琳 陈 婷 习欠云 张永亮
4858 黄花蒿在动物生产中的应用研究	郭世伟 徐元庆 张鹏飞 邢媛媛
	史彬林

猪营养

4864 低蛋白质水平饲粮对生长育肥猪生长性能及肠道菌群的影响	王 晶 王四新 刘 辉 张 伟
4874 饲粮直链/支链淀粉比对育肥猪生长性能、营养物质表观消化率、肠道食糜菌群数量与挥发性脂肪酸浓度以及肌肉脂肪含量的影响	张董燕 王雅民 季海峰
4886 低出生重对仔猪免疫功能的影响及精氨酸的营养效应	蒲俊宁 王华杰 陈代文 田 刚
	何 军 郑 萍 毛湘冰 虞 洁
	黄志清 罗钧秋 罗玉衡 余 冰
	田一航 陈代文 余 冰 何 军
	虞 洁 毛湘冰 罗玉衡 黄志清
	罗钧秋 郑 萍

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
播恩集团管理总部

禽营养

4898	蛋氨酸缺乏对肉仔鸡小肠发育和杯状细胞的影响	刘晓东	彭利兰	何胜梅	张 森
4907	饲料营养水平对中速型黄羽肉鸡生长性能、胴体品质、肉品质、风味和血浆生化指标的影响	莘海亮	吴邦元	李 龙	黄丹红
4922	急性热应激对肉仔鸡肠道屏障分子、营养转运蛋白和腺苷酸活化蛋白激酶的影响	林厦菁	苟钟勇	王继光	郝洋洋
4931	有机锌和有机锰对蛋种母鸡生产性能、蛋品质、抗氧化能力和免疫功能的影响	范秋丽	蒋守群	王 玉	张 帅
4939	羟基蛋氨酸锌对产蛋后期蛋鸡生产性能、蛋品质和免疫相关基因表达的影响	周华金	张 辉	马淑雪	刘 幸
4947	饲料碘添加水平对五龙鹅生长性能、屠宰性能、养分利用率及氮代谢的影响	钟 光	宋志刚	王宝维	葛文华
4954	鸭肥肝和鹅肥肝的氨基酸、脂肪酸营养价值及质构特性比较	郝洋洋	张修修	张福君	李承颖
		王少琨	宋志刚	岳 斌	
		齐 茜	李佶隆		
		高玉鹏	闵育娜		
		徐燕红	李星晨		
		王晓伟	李文立		
		秦鹏飞	王宝维		
		葛文华	张名爱		

反刍动物营养

4964	过瘤胃蛋氨酸对舍饲滩羊生长性能、屠宰性能和肉品质的影响	周玉香	王 萌	李作明	
4971	过瘤胃赖氨酸对奶牛瘤胃微生物蛋白产量、产奶性能和氮排泄的影响	张凯祥	邢德芳	高许雷	滕乐帮
4980	青贮组合型全混合日粮对育肥肉牛生长性能及血液指标的影响	吕永艳	孙国强	王虎成	郭旭生
4991	饥饿及恢复饲喂对牦牛生长性能、营养物质表观消化率和血清指标的影响	张 霞	王维中	彭全辉	薛 白
5002	低氮条件下饲料能量水平对藏羊尿嘌呤衍生物排出量和瘤胃微生物氮产量的影响	曾少玉	王之盛	胡 瑞	祝伊泉
5013	饲料中棕榈油脂肪粉添加水平对育肥期湖羊生长性能和营养物质消化代谢的影响	王立志	邹华围	康婧鹏	刘 虎
5023	饲料类型对育肥湖羊生长性能、屠宰性能和肉品质的影响	周芯宇	刘建忠	周建伟	李发弟
		郭亚敏	王文基	张乃锋	
		景小平	龙瑞军	邱家凌	鲁鑫涛
		刘 融	陶 慧	刘 兵	吴阿团
		刁其玉	马莲香	张甜甜	罗 军
		侯川川	郭 阳		
		何俊娜	潘 檀		
		余东游	王 平		
5032	补饲苜蓿干草对哺乳奶山羊羔羊生长发育及血浆生化指标的影响	吕 明			
		王 平			

水产营养

5040	饲料精氨酸水平对黄颡鱼幼鱼生长性能、消化吸收相关指标、免疫功能和抗氧化能力的影响	赵红霞	陈启明	黄燕华	曹俊明
5052	杂交鲢“先锋 1 号”幼鱼蛋白质需求量的研究	王国霞	陈 冰	陈晓瑛	
5062	条纹锯鲂幼鱼维生素 C 需要量	吴 凡	文 华	李 清	陈 见
		王贵英	李 佩	孙艳红	陆 星
		杨长庚			
		赵亭亭	陈 超	邵彦翔	张清雯
		刘 玲			

特种经济动物营养

5075	饲料粗蛋白质和粗脂肪水平对生长期貉生长性能、血清生化指标及游离氨基酸含量的影响	李 漠	董雪玉	巩文洋	杨 柳
		牛一兵	李 永	张贵贤	王夕国
		巩元芳	冯敏山	李素芬	

分子营养

5083	牛膝多糖抑制沙门氏菌感染猪小肠上皮细胞的研究	赵玉蓉	王耀东	冷炜博	王秀英
5089	天冬酰胺对脂多糖刺激断奶仔猪生长性能以及下丘脑-垂体-肾上腺轴 Toll 样受体 4 和核苷酸结合寡聚化结构域信号通路的影响	陈会甫	皮定安	康 萍	
		朱惠玲	刘玉兰		

5099	促肾上腺皮质激素释放因子在肉仔鸡食欲调控中的作用	周华金 宋志刚	李和朋	张 辉	王继光
饲料营养					
5107	绿茶粉和绿茶多酚对犬的降脂作用	李 玉 何 坤 王希春 吴金节	徐怡钟 郝 宁 周裔彬 宛晓春	梁 婷 邹苏萍 王一君	陶焕青 冯士彬 张劲松
5118	植物多酚对黄羽肉鸡抗氧化性能、肠道形态及肉品质的影响	吴 姝 施寿荣	蒋步云 贺 喜	宋泽和	侯德兴
5127	杜仲提取物对宁乡猪生长性能、血清生化指标和肝脏脂肪代谢的影响	李晨燕 郁元年 张 旭 杨 东 王韵斐	张 杨 吴 信 曾勇波 王文义 谭 军	肖定福 刘星亮 张 彬 马 涛 张 娟	邢月腾 谢献明 万 凡 刁其玉
5134	甜菜碱和 L-肉碱对蒙寒杂交羊生长性能、屠宰性能、器官发育及脂肪沉积的影响	闫佰鹏 李发弟	兰贵生 李 飞	李国彰 翁秀秀	牛骁麟
5145	不同淀粉来源饲料中添加酵母培养物对育肥湖羊生长性能、养分消化率及瘤胃发酵参数的影响	孙 飞 吴 萍 郁 浓	何 杰 吴代武 张艳芳	叶元土 周露阳	蔡春芳 高敏敏
5153	壳寡糖对异育银鲫生长性能、肠道组织结构和非特异性免疫功能的影响	周水岳 潘丽娜	杭远欣 王建武	张岩春 方热军	戴智勇
5164	配方奶粉中添加益生元对 SD 大鼠生长性能、血液生化指标和养分表观消化率的影响				
饲料资源开发					
5174	发酵白酒糟对育肥猪血浆生化参数和抗氧化指标的影响	张旺宏 程润喜 黄文琴 蒋小刚 朱玉霞 刘欣彤	李华伟 孔祥峰 吕小康 刁其玉 高爱琴 张志鹏	祝 倩 王世琴 张乃锋 张铁鹰 廖朝勇	黎智华 杨承剑 刘俊丽
5182	全株甘蔗对山羊生长性能、营养物质表观消化率、血清指标及瘤胃发酵参数的影响				
5192	高产纤维分解酶康氏木霉诱变选育与发酵条件优化				
饲料安全					
5202	我国生鲜乳中黄曲霉毒素 M ₁ 污染风险分析	李松励 张养东	闵 力 王加启	高亚男	郑 楠
研究简报					
5210	饲料不同油脂比例对冬毛期雄性银黑狐生长性能、血清生化指标及肠道形态结构的影响	钟 伟 李光玉	罗 婧	张 婷	孙旭阳
5221	多孔氧化锌对断奶仔猪粪便中微量元素含量、盲肠内容物与粪便中短链脂肪酸含量及肠道菌群多样性的影响	彭 鹏 李成良 印遇龙 高庆涛 刘保良	陈思佳 邓 敦 方热军	蒋再慧 罗 杰	汤小朋 王跃丽
5230	饲料粗纤维水平与采食时间对生长猪肠道食糜通过速度的影响	班志彬 张 莹 杨华明	闫晓刚 孙 蕾	魏柄栋 梁 浩	李立佳 郎朝丽
5238	生长期肉鸡不同豆粕净能值研究	董金金 曹玉凤 董雪玉 王夕国 李素芬	高艳霞 刘 博 李 漠 李 永	李 妍 许利民 牛一兵 段玲欣	李秋凤 李建国 巩文洋 冯敏山
5247	酵母多糖对哺乳犊牛胃肠道发育及消化酶活性的影响				
5255	貉对 5 种动物性蛋白质饲料中粗蛋白质消化率及有效能值的测定				

CHINESE JOURNAL OF ANIMAL NUTRITION

Chinese Core Journals

Abstracted in CAB Abstracts and Chemical Abstracts

Volume 30 Number 12 December 2018

CONTENTS

REVIEW

- 4769 Research Progress on Intestinal Mucus Barrier Function
- 4776 Research Progress of Aryl Hydrocarbon Receptor in Regulating Intestinal Inflammation
- 4786 Advances in Biological Functions of Animal Exosomes
- 4792 Physiological Functions of Inulin and Its Application in Livestock and Poultry Production
- 4799 Physiological Action and Mechanism of Guanidine Acetic Acid and Its Application in Broiler chickens and Pigs Production
- 4806 Effects of Rapeseed Oil on Performance, Egg Quality of Laying Hens and Its Mechanism Exploration
- 4813 Sources, Metabolic Pathways and Application of Tryptophan in Poultry
- 4821 Effects of High Concentrate Diets on Gastrointestinal Microflora in Ruminants and Its Regulation
- 4828 Development and Manipulation of Rumen Microbiota during Early-Life
- 4835 Research Progress of Effects of Myosin Light Chain Kinase on Regulation of Intestinal Mucosal Epithelial Barrier Function
- 4842 Research Progress on Enhancing Effect of Vitamin A on Antiviral Ability of Animals and Its Mechanism
- 4849 *Moringa oleifera*: Antibacterial and Anti-Inflammatory Effects and Application in Animal Production
- 4858 Study on Application of *Artemisia annua* L. in Animal Production

SWINE NUTRITION

- 4864 Effects of Low Protein Diets on Growth Performance and Intestinal Microbiota of Growing-Finishing Pigs
- 4874 Effects of Dietary Amylose/Amylopectin Ratio on Growth Performance, Nutrient Apparent Digestibility, Intestinal Microflora Number and Volatile Fatty Acid Concentrations and Intramuscular Fat Content of Finishing Pigs
- 4886 Effects of Low Birth Weight on Immune Function of Piglets and the Nutritional Effects of Arginine

POULTRY NUTRITION

- 4898 Effects of Methionine Deficiency on Small Intestinal Development and Goblet Cells of Broilers
- 4907 Effects of Dietary Nutrient Level on Growth Performance, Carcass Quality, Meat Quality, Flavor and Plasma Biochemical Parameters of Medium-Growing Yellow-Feathered Broilers

HAN Feifei, PENG Liyuan, ZHANG Xuefei, YANG Shasha, HAN Jianzhong, LI Chengliang, QI Guanghai, PENG Peng, FANG Rejun
QUAN Suyu, NAN Xuemei, JIANG Linshu, XIONG Benhai
CHEN Jiayi, CHEN Fengming, OU Shuqi, ZHAO Yurong
BAN Bo, JIANG Qingyou, YANG Tai, TIAN Kexiong
YUAN Ning, WANG Jianping, DING Xuemei, BAI Shiping, ZHANG Keying
JING Hansong, XU Miao, YANG Guiqin
LIU Junhui, DONG Guozhong, TIAN Ke
TIAN Ke, LIU Junhui, DONG Guozhong
WANG Mengya, GAO Min, XU Ming, HU Honglian
RAN Zhiming, CHEN Daiwen, YU Bing, ZHAO Ye
LI Xiaolin, CHEN Ting, XI Qianyun, ZHANG Yongliang
GUO Shiwei, XU Yuanqing, ZHANG Pengfei, XING Yuanyuan, SHI Binlin

WANG Jing, WANG Sixin, LIU Hui, ZHANG Wei, ZHANG Dongyan, WANG Yamin, JI Haifeng
PU Junning, WANG Huajie, CHEN Daiwen, TIAN Gang, HE Jun, ZHENG Ping, MAO Xiangbing, YU Jie, HUANG Zhiqing, LUO Junqiu, LUO Yuheng, YU Bing
TIAN Yihang, CHEN Daiwen, YU Bing, HE Jun, YU Jie, MAO Xiangbing, LUO Yuheng, HUANG Zhiqing, LUO Junqiu, ZHENG Ping

LIU Xiaodong, PENG Lilan, HE Shengmei, ZHANG Sen, SHEN Hailiang, WU Banguan
LIN Xiajing, GOU Zhongyong, LI Long, HUANG Danhong, FAN Qiuli, JIANG Shouqun

SUPPORTED FROM

(2018, in no particular order)

Shanghai Menon Animal Nutrition Technology Co., Ltd.

State Key Laboratory of Animal Nutrition

万方数据

The Management Headquarter of Boen Corporation

- 4922 Effects of Acute Heat Stress on Intestinal Barrier Molecule, Nutrient Transporter and Adenosine Monophosphate Activated Protein Kinase of Broilers
- 4931 Effects of Organic Zinc and Organic Manganese on Performance, Egg Quality, Antioxidant Capacity and Immune Function of Laying Breeding Hens
- 4939 Effects of Methionine Hydroxy Analog Chelate Zinc on Performance, Eggshell Quality and Immune-Related Gene Expression of Laying Hens during Later Period of Laying
- 4947 Effects of Dietary Iodine Supplemental Level on Growth Performance, Slaughter Performance, Nutrient Utilization and Nutrient Utilization of *Wulong* Geese
- 4954 Comparison on Amino Acids and Fatty Acids Nutritive Value and Texture Characteristics in Duck Fatty Liver and Goose Fatty Liver

RUMINANT NUTRITION

- 4964 Effects of Rumen-Bypass Methionine on Growth Performance, Slaughter Performance and Meat Quality of Stabbling *Tan* Sheep
- 4971 Effects of Rumen-Protected Lysine on Ruminal Microbial Protein Production, Milk Performance and Nitrogen Excretion of Dairy Cows
- 4980 Effects of Silage Combination Type Total Mixed Ration on Growth Performance and Blood Parameters of Fattening Beef Cattle
- 4991 Effects of Starvation and Refeeding on Growth Performance, Nutrient Apparent Digestibility and Serum Indices of Yaks
- 5002 Effects of Dietary Energy Level on Urinary Purine Derivatives Excretion and Ruminal Microbial Nitrogen Production of Tibetan Sheep under Low Nitrogen Condition
- 5013 Effects of Palm Oil Powder Supplemental Level on Growth Performance and Nutrient Digestion and Metabolism of Finishing *Hu* Sheep
- 5023 Effects of Different Diet Types on Growth Performance, Slaughter Performance and Meat Quality of Fattening *Hu* Sheep
- 5032 Effects of Supplementation of Alfalfa Hay on Growth and Development and Plasma Biochemical Indices of Dairy Goat Kids

AQUACULTURE NUTRITION

- 5040 Effects of Dietary Arginine Level on Growth Performance, Digestive and Absorptive Related Indexes, Immune Function and Antioxidant Ability of Juvenile Yellow Catfish (*Pelteobagrus fulvidraco*)
- 5052 Dietary Protein Requirement of Juvenile *Erythroculter ilishaeformis*(♀)×*Ancherythroculter nigrocauda*(♂) Hybrid F₁
- 5062 Vitamin C Requirement of Juvenile *Centropristis striata*

SPECIAL ECONOMIC ANIMAL NUTRITION

- 5075 Effects of Dietary Crude Protein and Ether Extract Levels on Growth Performance, Serum Biochemical Indices and Free Amino Acid Contents of Raccoon Dogs during Growing Period

MOLECULAR NUTRITION

- 5083 Study on Inhibitory Effects of *Achyranthes bidentata* Polysaccharides on *Salmonella* Infection in Intestinal Porcine Epithelial Cells-1
- 5089 Effects of Asparagine on Growth Performance and Toll-Like Receptor 4 and Nucleotide Binding Oligomerization Domain Signaling Pathways of Hypothalamus-Pituitary-Adrenal Axis of Weanling Piglets Challenged by Lipopolysaccharide

ZHOU Huajin, ZHANG Hui, WANG Jiguang, HAO Yangyang, ZHONG Guang, SONG Zhigang
HAO Yangyang, ZHANG Xiuxiu, WANG Yu, ZHANG Shuai, WANG Shaokun, SONG Zhigang
QI Xi, LI Jilong, MA Shuxue, LIU Xing, GAO Yupeng, MIN Yuna

XU Yanhong, LI Xingchen, WANG Baowei, GE Wenhua, WANG Xiaowei, LI Wenli
QIN Pengfei, WANG Baowei, ZHANG Fujun, LI Chengying, GE Wenhua, ZHANG Ming'ai, YUE Bin

ZHOU Yuxiang, WANG Meng, LI Zuoming
ZHANG Kaixiang, XING Defang, GAO Xulei, TENG Lebang, LYU Yongyan, SUN Guoqiang
ZHANG Xia, WANG Weizhong, WANG Hucheng, GUO Xusheng

ZENG Shaoyu, WANG Zhisheng, PENG Qianhui, XUE Bai, WANG Lizhi, ZOU Huawei, HU Rui, ZHU Yixiao, ZHOU Xinyu, LIU Jianzhong
GUO Yamin, WANG Wenji, KANG Jingpeng, LIU Hu, JING Xiaoping, LONG Ruijun, ZHOU Jianwei
LIU Rong, TAO Hui, ZHANG Naifeng, LI Fadi, DIAO Qiyu

HOU Chuanchuan, MA Lianxiang, QIU Jialing, LU Xintao, HE Junna, GUO Yang, LIU Bing, WU A'tuan, YU Dongyou
LYU Ming, PAN Tan, ZHANG Tiantian, LUO Jun, WANG Ping

ZHAO Hongxia, CHEN Qiming, HUANG Yanhua, CAO Junming, WANG Guoxia, CHEN Bing, CHEN Xiaoying
WU Fan, WEN Hua, LI Qing, CHEN Jian, WANG Guiying, LI Pei, SUN Yanhong, LU Xing, YANG Changgeng
ZHAO Tingting, CHEN Chao, SHAO Yanxiang, ZHANG Qingwen, LIU Ling

LI Mo, DONG Xueyu, GONG Wenyang, YANG Liu, NIU Yibing, LI Yong, ZHANG Guixian, WANG Xiguo, GONG Yuanfang, FENG Minshan, LI Sufen

ZHAO Yurong, WANG Yaodong

CHEN Huifu, PI Dingan, LENG Weibo, WANG Xiuying, ZHU Huiling, LIU Yulan, KANG Ping

5099 Effects of Corticotropin-Releasing Factor on Appetite Regulation of Broilers

FEED SCIENCE AND TECHNOLOGY

5107 Lipid-Lowering Effect of Green Tea Powder and Green Tea Polyphenols in Canines

5118 Effects of Botanical Polyphenol on Antioxidant Capacity, Intestinal Morphology and Meat Quality of Yellow Broilers

5127 Effects of *Eucommia ulmoides* Oliver Extracts on Growth Performance, Serum Biochemical Indexes and Liver Lipid Metabolism of *Ningxiang* Pigs

5134 Effects of Betaine and *L*-Carnitine on Growth Performance, Slaughter Performance, Organ Development and Fat Deposition of Mongolia Hybrid Sheep

5145 Effects of Yeast Culture Supplementation in Diets with Different Starch Sources on Growing Performance, Nutrient Digestibility and Ruminal Fermentation Parameters in *Hu* Sheep

5153 Effects of Chitosan Oligosaccharide on Growth Performance, Intestinal Structure and Non-Specific Immune Function of Crucian Carp (*Carassius auratus gibelio*)

5164 Effects of Prebiotics Supplemented in Infant Formula on Growth Performance, Blood Biochemical Indices and Nutrient Apparent Digestibility of SD Rats

FEED RESOURCES DEVELOPMENT

5174 Effects of Fermented Distiller's Grains on Plasma Biochemical Parameters and Antioxidant Indices of Finishing Pigs

5182 Effects of Whole Sugarcane on Growth Performance, Nutrient Apparent Digestibility, Serum Indexes and Rumen Fermentation Indexes of Goats

5192 Mutagenesis Breeding and Fermentation Condition Optimization of High Yield Fiber Decomposition Enzyme of *Trichoderma koningii*

FEED SECURITY

5202 Risk Analysis of Aflatoxin M₁ Contamination in Raw Milk from China

SHORT COMMUNICATIONS

5210 Effects of Dietary Different Oil Ratios on Growth Performance, Serum Biochemical Parameters and Intestinal Morphology of Male Silver Foxes during Winter-Furring Period

5221 Effects of Porous Zinc Oxide on Fecal Microelement Contents, Short Chain Fatty Acid Contents in Cecum Content and Feces and Intestinal Bacterial Diversity of Weaned Piglets

5230 Effects of Dietary Crude Fiber Level and Feeding Time on Passage Rate of Digesta in Intestinal Tract of Growing Pigs

5238 Study on Net Energy Values of Different Soybean Meals for Chickens during Growing Period

5247 Effects of Yeast Polysaccharide on Gastrointestinal Development and Digestive Enzyme Activity of Sucking Calves

5255 Evaluations of Crude Protein Digestibility and Effective Energy Values in Five Animal Protein Feeds for Raccoon Dogs

ZHOU Huajin, LI Hepeng, ZHANG Hui, WANG Jiguang, SONG Zhigang

LI Yu, XU Yizhong, LIANG Ting, TAO Huanqing, HE Kun, HAO Ning, ZOU Suping, FENG Shibin, WANG Xichun, ZHOU Yibin, WANG Yijun, ZHANG Jinsong, WU Jinjie, WAN Xiaochun

WU Shu, JIANG Buyun, SONG Zehe, HOU Dexing, SHI Shourong, HE Xi

LI Chenyan, ZHANG Yang, XIAO Dingfu, XING Yueteng, YU Yuannian, WU Xin, LIU Xingliang, XIE Xianming, ZHANG Xu, ZENG Yongbo, ZHANG Bin

YANG Dong, WANG Wenyi, MA Tao, WAN Fan, WANG Yunfei, TAN Jun, ZHANG Juan, DIAO Qiyu

YAN Baipeng, LAN Guisheng, LI Guozhang, NIU Xiaolin, LI Fadi, LI Fei, WENG Xiuxiu

SUN Fei, HE Jie, YE Yuantu, CAI Chunfang, WU Ping, WU Daiwu, ZHOU Luyang, GAO Minmin, YU Nong, ZHANG Yanfang

ZHOU Shuiyue, HANG Yuanxin, ZHANG Yanchun, DAI Zhiyong, PAN Lina, WANG Jianwu, FANG Rejun

ZHANG Wanghong, LI Huawei, ZHU Qian, LI Zhihua, CHENG Runxi, KONG Xiangfeng

HUANG Wenqin, LYU Xiaokang, WANG Shiqin, YANG Chengjian, JIANG Xiaogang, DIAO Qiyu, ZHANG Naifeng

ZHU Yuxia, GAO Aiqin, ZHANG Tiejing, LIU Junli, LIU Xintong, ZHANG Zhipeng, LIAO Chaoyong

LI Songli, MIN Li, GAO Yanan, ZHENG Nan, ZHANG Yangdong, WANG Jiaqi

ZHONG Wei, LUO Jing, ZHANG Ting, SUN Xuyang, LI Guangyu

PENG Peng, CHEN Sijia, JIANG Zaihui, TANG Xiaopeng, LI Chengliang, DENG Dun, LUO Jie, WANG Yueli, YIN Yulong, FANG Rejun

GAO Qingtao, ZHAO Feng, ZHANG Hu, WANG Ya, LIU Baoliang

BAN Zhibin, YAN Xiaogang, WEI Bingdong, LI Lijia, ZHANG Ying, SUN Lei, LIANG Hao, LANG Chaoli, YANG Huaming

DONG Jinjin, GAO Yanxia, LI Yan, LI Qiufeng, CAO Yufeng, LIU Bo, XU Limin, LI Jianguo

DONG Xueyu, LI Mo, NIU Yibing, GONG Wenyang, WANG Xiguo, LI Yong, DUAN Lingxin, FENG Minshan, LI Sufen