



2019年第11期总178期

动物营养专题

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中国农业科学院农业信息研究所

联系人: 熊本海

联系电话: 010-62816017

邮箱: agri@ckcest.cn

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▶ 前沿资讯

1. 2018年生猪产业发展状况未来发展趋势与建议

简介: 2018 年是我国生猪产业发展极不平凡的一年, 必将对未来的产业发展产生持久深远的影响。本文回顾了2018 年国内外生猪产业生产与贸易概况, 概括总结了2018 年我国生猪产业的发展现状及存在的主要问题, 展望了生猪产业未来的发展趋势, 并对下一步产业发展重点提出了建设性的意见。

来源: 中国养殖信息网

发布日期: 2019-03-07

全文链接:

<http://www.aaabio.com/news/show.php?itemid=4401>

▶ 学术文献

1. 含硫氨基酸在动物肠道代谢及养殖生产中应用

简介: 含硫氨基酸(SAA)作为动物体内重要的功能性氨基酸, 具有促进营养物质在肠道消化吸收和代谢, 维持肠道正常形态结构, 增强肠道紧密连接蛋白通透性, 增强肠道机械屏障和生物学屏障等功能, 对动物生长发育及机体免疫方面具有重要作用。文章从含硫氨基酸在动物肠道代谢、对肠道形态结构、肠道微生物影响等方面展开综述, 旨为其动物生产应用提供理论参考。

来源: 东北农业大学学报

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全文链接:

<http://agri.ckcest.cn/file1/M00/06/60/Csgk0FyHHUeADzjrAA10jqFT2dw347.pdf>

2. 日粮中添加有机酸对猪消化道的影晌(综述)

简介: 动物的生产力取决于它们对养分的利用情况, 如果一切顺利, 动物就会加速增长, 成本饲料比降低。公众担心食用饲喂抗生素生长促进剂的猪会生产出带有抗生素残留的肉, 这为使用其他饲料添加剂如中草药及其制品、益生菌和益生元等铺平了道路。有许多饲料添加剂为实现这一目标而大量流行, 其中一个经典的案例是有机酸以及有机酸盐的使用。有机酸的使用已经持续了四十多年。早期断奶仔猪(3~4周龄)面临着采食量减少的应激, 甚至导致体重几乎无增加。仔猪在断奶后出现的这种生长停滞是由于其消化和吸收能力有限所致, 也是盐酸和胰腺酶分泌不足以及日粮一致性和采食量的突然变化带来的结果。研究表明利用弱有机酸来降低日粮pH可以克服这些问题。有机酸的主要活性与降低胃内容物pH有关, 其可将胃蛋白酶原转变为具有活性的蛋白酶, 以进行有效的蛋白质水解。有机酸既能抑菌又能杀菌。据报道, 乳酸可以降低胃内容物的pH, 并延缓产肠毒素性大肠杆菌的增殖。这些酸性物质是克雷伯氏菌循环的中间产物, 它们作为消化道上皮细胞的能量来源, 可以防止糖异生和脂解作用引起的组织降解。有机酸可减少添加的矿物质和氮的排泄量, 这是因为有机酸会与矿物质形成复合物, 提高它们的生物利用率。大肠中的日粮纤维经微生物发酵会生成乙酸、丙酸和正丁酸等短链脂肪酸, 它们能够促进消化道上皮细胞的增殖, 且对猪胰腺的内分泌和外分泌产生刺激作用。有

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机酸还可以提高猪的表观总消化道消化率,并改善动物的生长性能。综上,有机酸及有机酸盐可以提高猪尤其是断奶仔猪的蛋白质利用率,同时提高生产指标。

来源: 国外畜牧学(猪与禽)

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全文链接:

<http://agri.ckcest.cn/file1/M00/06/60/Csgk0FyHH4CAXFI6AAzUUqE8vTU605.pdf>

3 . Advances in low-protein diets for swine (猪低蛋白饲料的研究进展)

简介: Recent years have witnessed the great advantages of reducing dietary crude protein(CP) with free amino acids(AA)supplementation for sustainable swine industry, including saving protein ingredients, reducing nitrogen excretion, feed costs and the risk of gut disorders without impairing growth performance compared to traditional diets. However, a tendency toward increased fatness is a matter of concern when pigs are fed low-protein(LP) diets. In response, the use of the net energy system and balanced AA for formulation of LP diets has been proposed as a solution. Moreover, the extent to which dietary CP can be reduced is complicated. Meanwhile, the requirements for the first five limiting AA(lysine, threonine, sulfur-containing AA, tryptophan, and valine) that growing-finishing pigs fed LP diets were higher than pigs fed traditional diets, because the need for nitrogen for endogenous synthesis of non-essential AA to support protein synthesis may be increased when dietary CP is lowered. Overall, to address these concerns and give a better understanding of this nutritional strategy, this paper reviews recent advances in the study of LP diets for swine and provides some insights into future research directions.

来源: Journal of Animal Science and Biotechnology

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<http://agri.ckcest.cn/file1/M00/06/60/Csgk0FyHGUAW40jABmcI3jKceM776.pdf>

4 . l -arginine supplementation in sow diet during late gestation decrease stillborn piglet, increase piglet birth weight and increase immunoglobulin G concentration in colostrum (妊娠晚期母猪日粮中添加L-精氨酸,可减少死产仔猪,增加仔猪出生体重,增加初乳中免疫球蛋白G浓度)

简介: The fetal growth is rapid during the last trimester of gestation in sows and hence sow nutrition during this period is important for fetal growth and development. During the last decade, studies reported that l -arginine HCl supplementation during gestation increased sow and piglet performances. However, clinical studies concerning the association between l -arginine HCL supplementation and some neonatal piglet characteristics as well as colostrum and milk yield of sow are still lacking. The present study aims to determine the effect of l -arginine HCl supplementation in sow diet during late gestation on piglet characteristics at birth, colostrum consumption (CC), concentration of immunoglobulin G (IgG) in colostrum, milk

yield, average daily gain at d 7 and 21 and piglet mortality at d 7 and 21 of life. In total, 166 sows were allocated into four groups, i.e., CON (n = 66), ARG-0.5 (n = 42), ARG-1.0 (n = 41) and ALA (n = 17). The sows in each group were fed with a conventional gestation diet (CON) or the same diet supplemented with 0.5% l -arginine HCl (ARG-0.5), 1.0% l -arginine HCl (ARG-1.0) or 1.7% l -alanine (ALA, isonitrogenous with ARG-1.0). The feeding protocol was carried out from 85 days of gestation until farrowing. The proportion of live-born piglets, piglet birth weight (BW B), within-litter variation of BW B , proportion of piglets with BW B above 1.35 kg, proportion of growth-restricted piglets (defined as BW B below 1.0 kg), blood oxygen saturation (SatO 2) and heart rate were determined in 2292 newborn piglets from 166 litters. Colostrum consumption of each individual piglets and the colostral concentration of IgG was determined. The milk yield between d 07 and 721 and relative backfat loss were estimated in each individual sow. The piglet mortality and body weight was determined at d 7 and 21 of life. On average, the number of piglet born alive per litter was 12.4. The proportion of stillborn piglets, piglets with BW B above 1.35 kg and growth-restricted piglets were 6.9%, 62.7% and 14.0%, respectively. Piglet preweaning mortality at d 7 and 21 were 8.5% and 12.4%, respectively. Compared to the ALA group, ARG-0.5 increased the proportion of live-born piglets per litter (+9.8%, P < 0.001), reduced stillborn (-8.3%, P < 0.001) and tended to increase the proportion of piglets with BW B above 1.35 kg (+6.4%, P = 0.08). Compared to the CON group, ARG-0.5 increased BW B (+7.0%, P < 0.001), increased SatO 2 (+3%, P < 0.001) and reduced heart rate (-20%, P < 0.001) and tended to reduce the relative backfat loss (-4.4%, P = 0.06). No difference between ARG-1.0 and ARG-0.5 was observed among these traits. Other traits including within-litter variation of BW B , growth-restricted piglets, average daily gain, piglets preweaning mortality and CC and milk yield were not affected by treatment (P > 0.05). The colostral concentration of IgG at 1 h after onset of farrowing in ARG-1.0 sows (116 mg/ml) was higher than CON, ARG-0.5 and ALA sows (85, 74 and 78 mg/ml, respectively; P < 0.05). In conclusions, dietary l -arginine HCl supplementation in late gestating sows favourably increased proportion of live-born piglets, BW B , SatO 2 and IgG concentration in the sow colostrum.

来源: Theriogenology

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<http://agri.ckcest.cn/file1/M00/06/60/Csgk0FyHIL2AWyT3AA1px7hNFjM141.pdf>