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动物营养专题

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前沿资讯

1．2022年全球肉类价格创历史新高

简介：“2022年，全球肉类产量预计可达3.6亿吨，比2021年增长1.2%。同时，国际肉类价格指数在2022年6月份达到历史新高。”近日，联合国粮农组织发布《肉类市场评估报告、趋势及展望2022》，报告中表示，近几个月来，全球肉类进口需求一直低迷。全球肉类生产扩大，但贸易在下降：报告显示，2022年，全球肉类生产仍处在扩大之中，预计全年肉类产量可以达到3.6亿吨，比2021年增长1.2%。据预测，大部分的增长来自亚洲，如中国猪肉产量提升，同时南美洲的牛肉和禽肉也有增长，其他地区的肉类产量相对稳定，欧洲肉类产量则出现下降。与此同时，全球肉类贸易总量却在下降，报告显示，2022年全球肉类贸易总量预计达到4160万吨，比2021年下降0.8%。其中中国肉类进口预计同比下降20%。这与国内供应量、尤其是猪肉供应量大幅增加有关。报告还预计，在未来几个月，预计进口将随着国内价格的上涨而扩大。自2020年10月以来，粮农组织肉类价格指数急剧上升，在2022年6月，肉类价格指数达到历史最高水平。报告认为，这一方面和主要供应国中，几乎所有肉类都出现供应紧张有关，同时，也和全球经济低迷食品进口费用高企、餐饮业低迷以及主产国国内生产增加等因素有必然的关系。与此同时，2022年，全球肉类生产系统受到了生产利润率下降的影响。报告指出，随着能源、动物饲料和化肥价格上升，养殖者投入成本急剧上升，超过价格涨幅。动物疾病继续影响大多数生产大国的肉类生产，也引发着贸易阻碍。新冠肺炎疫情相关的社交距离要求已明显放松，但影响仍未完全消退。不利天气也给肉类生产带来了负面影响，尤其是连续的拉尼娜天气现象，导致一些生产者提前出栏牲畜。肉类价格指数创造历史新高：多重因素影响下，国际肉类价格在6月份达到历史新高。除2021年8月至12月，国际肉类价格自2020年10月以来急剧上升，FAO肉类价格指数在2022年6月达到历史最高水平，主要原因是主要供应国几乎所有肉类供应紧张。与此同时，受全球经济低迷、食品进口费用高企、餐饮业低迷以及主产国国内生产增加等影响，全球肉类进口需求近几个月来一直低迷。在具体的肉类中，最贵的牛肉，自2020年10月以来，几乎没有间断地上涨，并在2022年3月达到历史最高水平。禽肉方面，由于禽流感大范围暴发、饲料成本上升、劳动力短缺和持续的供应链瓶颈等因素，国际禽肉价格自2020年11月上涨，2022年7月达到历史最高水平，“反映出全球供应紧张的现象。”报告认为。猪肉价格的上涨，主要由猪肉出口国减少生产、出口供应紧张所致，特别是欧盟和美国出口供应紧张，产生了较大的影响。猪肉，中国产量占全球近一半：猪肉是人类肉类消费中的主要种类，报告显示，2022年，全球猪肉产量预计为1.246亿吨，较2021年增长1.8%。产量增长主要受2022年上半年中国生猪产能恢复、生猪屠宰大幅增加的影响，中国猪肉产量约占全球猪肉产量的46%。尽管最近几个月国内价格持续上涨，但由于多种不利因素，下半年猪肉产量有所下降。同时，越南、缅甸、俄罗斯等国家的非洲猪瘟疫情基本得到控制，预计产量增加，在一定程度上影响了国内价格。当前，非洲猪瘟仍在对许多国家的猪肉生产造成影响，包括欧盟、泰国和菲律宾等。公开的信息显示，欧盟猪肉产量预计将减少5%左右。泰国猪肉产量预计将下降30%以上。报告预计，2022年，全球猪肉出口总量预计达到1130万吨，较上年下降11.3%。在主要进口国中，中国猪肉进口量预计将下降近45%，总进口量约为270万吨，占全球贸易的24%。2022年，美国、韩国、墨西哥、日本、英国和菲律宾等国，预计猪肉进口将增加。猪肉消费不断增长推动美国和墨西哥增加猪肉进口。截至9月份，日本、韩国今年上半年进口量同比分别增长了9%和30.5%，预计全年进口量将保持稳定。出口方面，中国猪肉进口量预计减少，可能导致欧盟、美国、加拿大

和巴西这四大猪肉出口国出口量的减少。
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学术文献

1．棉籽浓缩蛋白营养价值评定及其对断奶仔猪生长性能的影响

简介：本研究旨在评价棉籽浓缩蛋白的营养价值及其替代大豆浓缩蛋白对断奶仔猪生长性能、营养物质消化率和血清生化指标的影响。试验1:将12头生长猪随机分成2组（每组6个重复，每个重复1头猪），分别饲喂玉米基础饲粮和棉籽浓缩蛋白饲粮。采用全收粪尿法和套算法测定棉籽浓缩蛋白的消化能和代谢能。试验2:将12头生长猪随机分成2组（每组6个重复，每个重复1头猪），分别饲喂无氮饲粮和棉籽浓缩蛋白饲粮。采用指示剂法和直接法测定棉籽浓缩蛋白的粗蛋白质和氨基酸标准回肠消化率。试验3:将192头断奶仔猪随机分成4组（每组6个重复，每个重复8头猪），分别饲喂棉籽浓缩蛋白水平为0、2%、4%和6%（等量替代大豆浓缩蛋白）的试验饲粮，试验期28 d。结果表明:1)风干基础下棉籽浓缩蛋白消化能、代谢能和总能消化率分别为16.51 MJ/kg、15.38 MJ/kg和89.78%。2)棉籽浓缩蛋白的粗蛋白质和氨基酸标准回肠消化率89%和75%～94%。3)不同添加水平的棉籽浓缩蛋白替代大豆浓缩蛋白对断奶仔猪生长性能、营养物质消化率及血清生化指标均没有显著影响（P＞0.05）。由此可见，棉籽浓缩蛋白在断奶仔猪饲粮中可以完全替代大豆浓缩蛋白，并不会影响仔猪生长性能。
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2．Ileal nutrient and energy digestibility of steam-exploded canola meal in cannulated grower pigs and total tract nutrient digestibility and growth performance of diets containing steam-exploded canola meal in weaned pigs（蒸汽爆破菜籽粕对空心生长猪回肠养分和能量消化率及含蒸汽爆破菜籽粕饲粮对断奶仔猪全肠道养分消化率和生长性能的影响）

简介：Canola meal is a relatively highly fibrous protein meal that could benefit from further processing to disrupt its fibre matrix, reduce anti-nutritional factors and increase nutrient availability. Two studies were conducted to determine effects of steam-explosion on digestibility of gross energy (GE), crude protein (CP) and amino acids (AA) in solvent-extracted Brassica napus canola meal in grower pigs and diet nutrient digestibility and growth performance in weaned pigs. Canola meal was steam-exploded at either 0.7 MPa (CM7) or 1.1 MPa (CM11) for 5 min. In study 1, 8 ileal-cannulated barrows (29 kg mean initial body weight) were fed 3 corn starch-based diets including 400 g non-steam-exploded

canola meal (CM0), CM7 or CM11/kg and a N-free diet in a replicated 4 × 3 Youden square. The canola meal sample contained 361 g CP/kg and 17.2 g chemically available lysine/kg that was reduced to 14.1 g/kg in CM7 and 14.6 g/kg in CM11. Steam-explosion of canola meal at 0.7 MPa decreased (P < 0.05) the coefficient of apparent ileal digestibility (CAID) of dry matter (DM) and GE. Steam-explosion decreased (P < 0.05) the coefficient of standardised ileal digestibility (CSID) of CP and AA in canola meal except for tryptophan, proline and tyrosine. In study 2, four wheat-based diets were formulated to include 200 g/kg soybean meal (SBM), CM0, CM7 or CM11 and to provide 9.6 MJ net energy/kg and 12 g standardised ileal digestible lysine/kg. In total, 256 weaned pigs (10 kg mean initial body weight) were fed the diets for 4 weeks starting 2 weeks post-weaning. The CM0, CM7, and CM11 diets had lower (P < 0.05) coefficient of apparent total tract digestibility (CATTD) of DM, CP and GE than the SBM diet. Steam-explosion of canola meal reduced (P < 0.05) dietary CATTD of CP. For the 28-day nursery trial, average daily feed intake (ADFI) of pigs fed the CM0 diet was lower (P < 0.05) than of pigs fed the SBM diet. Steam-explosion of canola meal increased (P < 0.05) ADFI. Average daily gain (ADG) did not differ among pigs fed the 4 diets. Finally, gain-to-feed ratio (G:F) was greater (P < 0.05) for pigs fed the 3 canola meal diets than the SBM diet. In conclusion, steam-explosion reduced ileal digestibility of CP, most indispensable AA and GE of canola meal in grower pigs. Dietary inclusion of 200 g canola meal/kg supplemented with crystalline amino acids and canola oil to replace dehulled soybean meal reduced ADFI, but not ADG, and thus increased G:F in weaned pigs. Steam-explosion of canola meal reduced dietary CATTD of CP and increased ADFI, but not ADG or G:F of weaned pigs.

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3．后生素对肠道屏障的影响

简介:肠道担负着重要的屏障功能，该屏障可以有效抵御致病菌和有毒有害物质的侵染，其完整性直接影响机体的健康。后生素是近年来益生菌领域研究的新生长点，是指能够对机体起到有效健康的灭活益生菌及其代谢物。本文综述了后生素与肠道屏障健康的关系、及其对机体肠道屏障的研究进展，为其在畜牧业中的应用提供一定参考。

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4．Evaluation of nutritional quality for weaner piglets of a new methanotrophic microbial cell-derived protein feed（新型甲烷营养微生物细胞衍生蛋白饲料对断奶仔猪营养质量的评价）

简介：This study aimed to test the hypothesis that a new methanotrophic microbial cell protein (MCP) product, Uniprotein®, has a protein value comparable to other

high-quality feeds for weaner piglets. Two experiments were conducted. Experiment 1 was a balanced 6 × 6 Latin square design experiment with six ileal cannulated castrated pigs (start weight 30.2 ± 1.4 kg). They were fed six different diets (one diet did not belong to this study) over six periods, each of one week duration. Four of the diets contained 180 g crude protein (CP)/kg as-fed with either MCP, potato protein (PP), fishmeal (FM), or soy protein concentrate as the sole N-source. The fifth diet was N-free. Experiment 2 was a dose-response trial, where piglets during the first 14 days post-weaning were fed diets including increasing amounts of MCP (0, 30.0, 60.0, or 100.0 g MCP/kg as-fed, equivalent to 0, 112, 221 and 359 g microbial-derived CP/kg diet CP) at the expense of FM and PP. Crystaline CP, Lys, Met, Thr, Trp and Val were added to minimize differences across diets, and no medicinal zinc was added to any of the diets. In experiment 1, MCP had the second highest content of essential amino acids (EAA), but the lowest coefficient of standardized ileal digestibility for all EAA except Lys ($P < 0.001$). However, when contents of ileal digestible EAA were expressed relative to contents of ileal digestible Lys, MCP complied with Danish nutrient recommendations for weaner piglets for 7 out of 9 EAA, and with particularly high levels of digestible Met and Trp. Microbial cell protein had a superior profile as compared to FM for digestible EAA relative to digestible Lys. In experiment 2, MCP could constitute up to 221 g CP/kg diet without any addition of medicinal zinc during the first 14 days post-weaning without any negative impacts on daily weight gain or feed efficiency (gain:feed) compared to the control diet (0 MCP). In conclusion, MCP fulfills Danish recommendations for EAA composition for most EAA and can replace other high quality protein sources to constitute up to 22% of diet CP for weaner piglets without compromising piglet performance.
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