



2022年第17期总340期

## 动物营养专题

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2022年4月25日

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## ▶ 前沿资讯

### 1. 国家统计局：一季度末生猪存栏4.22亿头，能繁母猪存栏4185万头

**简介：** 一季度，面对国际环境更趋复杂严峻和国内疫情频发带来的多重考验，在以习近平总书记为核心的党中央坚强领导下，各地区各部门认真贯彻落实党中央、国务院决策部署，科学统筹疫情防控和经济社会发展，坚持稳字当头、稳中求进，国民经济延续恢复发展态势，经济运行总体平稳。初步核算，一季度国内生产总值270178亿元，按不变价格计算，同比增长4.8%，比2021年四季度环比增长1.3%。分产业看，第一产业增加值10954亿元，同比增长6.0%；第二产业增加值106187亿元，增长5.8%；第三产业增加值153037亿元，增长4.0%。

**来源：** 中国饲料行业信息网

**发布日期：**2022-04-18

**全文链接：**

<http://agri.ckcest.cn/file1/M00/03/2D/Csgk0Yazs4SAVEZ1ABH8swmXMH4310.pdf>

### 2 . USDA funding African swine fever vaccine development work (美国农业部资助非洲猪瘟疫苗研发工作)

**简介：** ATCC, a US biological materials management and standards organization, is set to modify specific cell lines for ASF virus vaccine research and production. The non-profit organization, which is headquartered in Manassas, Virginia, and which has a research and technology center of excellence in Gaithersburg, Maryland, has been awarded two projects, with a combined value of \$385,000, by the US Department of Agriculture (USDA).

**来源：** Feednavigator 官网

**发布日期：**2022-04-15

**全文链接：**

<http://agri.ckcest.cn/file1/M00/0F/FF/Csgk0GJdCdSAR8DSAAkNxiyDGBU204.pdf>

## ▶ 学术文献

### 1. 基于液相芯片的猪基因组选择实施新策略

**简介：** 基因组选择已成为动植物育种的革命性技术，在我国猪育种工作中也逐渐开展，但我国猪基因组选择实施情况并不乐观。本文针对我国猪基因组选择育种实践中存在的问题和痛点，利用自主知识产权的液相芯片优势，提出了“先低后高，先多后少”的基因组育种新策略，通过具体案例，比较了新策略与传统的基因组选择策略和常规育种的优点，新策略成本降低，基因组育种效率提升，且更容易实施。本研究结果有助于基因组选择技术在我国猪育种领域的推广。

**来源：** 中国知网

**发布日期：**2022-04-10

**全文链接：**

[http://agri.ckcest.cn/file1/M00/0F/FF/Csgk0GJdBeiAW\\_VcAB7xrhQj4gQ019.pdf](http://agri.ckcest.cn/file1/M00/0F/FF/Csgk0GJdBeiAW_VcAB7xrhQj4gQ019.pdf)

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## 2 . CCK and GLP-1 release in response to proteinogenic amino acids using a small intestine ex vivo model in pigs (在猪小肠体外模型中, CCK和GLP-1释放对蛋白质生成氨基酸的响应)

**简介:** The impact of individual amino acids (AA) on gut hormone secretion and appetite regulation in pigs remains largely unknown. The aim of the present study was to determine the effect of the 20 proteinogenic AA on the release of the anorexigenic hormones cholecystokinin (CCK) and glucagon-like peptide 1 (GLP-1) in post weaning pigs. Six 25-d-old male piglets (Domestic Landrace x Large White; body weight = 6.94 ± 0.29 kg) were humanely killed for the collection of intestinal segments from duodenum, jejunum, and ileum. Tissue samples from the 3 intestinal segments were used to determine which of the regions were more relevant for the analysis of gut peptides. Only the segments with the highest CCK and GLP-1 secretion and expression levels were evaluated with the 20 individual AA. Tissue segments were cut open, cleaned and stripped of their muscle layer before identical circular samples were collected and incubated in 24-well plates for 1 h (37 °C, 5 % v/v CO<sub>2</sub>). The culture broth consisted of a glucose-free KRB buffer containing no added AA (control) or with the addition of 10 mM of 1 of the 20 proteinogenic AA. Following incubation, tissues and supernatant were collected for gene expression and secretion analysis of CCK and GLP-1 levels. CCK secretion and mRNA expression was higher (P < 0.05) in duodenum when compared to proximal jejunum or ileum, whereas GLP-1/proglucagon levels were higher in ileum vs. duodenum (P < 0.05) and jejunum (P < 0.05, for GLP-1 only) in post weaning pigs. Based on these results, the effect of AA on CCK and GLP-1 secretion was studied in duodenum and ileum, respectively. None of the AA tested stimulated both anorexigenic hormones. Of all the EAA, Ile, Leu, Met and Trp significantly (P<0.05) stimulated GLP-1 from ileum while only Phe stimulated CCK from duodenum. Of the NEAA, amide AA (Gln and Asn) caused the release of CCK, while Glu and Arg increased the release of GLP-1 from ileum. Interpreting the results in context of the digestion and absorption dynamics, non-bound AA are quickly absorbed and have their effect on gut peptide secretion limited to the proximal small intestine (i.e. duodenum), thus, mainly CCK. In contrast, protein-bound AA would only stimulate CCK release from duodenum through feedback mechanisms (such as through GLP-1 secreted mainly in the ileum).

**来源:** 中国知网

**发布日期:** 2022-03-22

**全文链接:**

<http://agri.ckcest.cn/file1/M00/03/2D/Csgk0YazuIuAaLHFAA5jWR71WJw843.pdf>

## 3. 不同水平发酵豆粕对猪肌肉中氨基酸、脂肪酸及肌苷酸含量的影响

**简介:** 试验旨在研究不同水平发酵豆粕对猪背最长肌中氨基酸、脂肪酸及肌苷酸含量的影响。试验选取240头初重为(60.38±1.87) kg的“杜×长×大”猪,随机分成5组,每组4个重复,每个重复饲养12头猪。对照组为喂基础日粮,试验I组、II组、III组、

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IV组在基础日粮中分别添加4%、6%、8%、10%的发酵豆粕。采用HPLC法检测背最长肌中肌苷酸含量，气相色谱法检测脂肪酸含量，全自动氨基酸分析仪检测氨基酸含量。结果显示，与对照组相比，试验组肉中的苯丙氨酸（Phe）含量极显著提高（ $P<0.01$ ），天冬氨酸（Asp）和谷氨酸（Glu）含量显著增加（ $P<0.05$ ）；试验I组、II组、IV组的甘氨酸（Gly）和丙氨酸（Ala）含量显著增加（ $P<0.05$ ），试验III组的甘氨酸（Gly）、丙氨酸（Ala）含量分别极显著增加22.62%、21.34%（ $P<0.01$ ）；试验III组的必需氨基酸（EAA）、非必需氨基酸（NEAA）、鲜味氨基酸（DAA）总量和总氨基酸（TAA）含量分别显著提高12.72%、9.81%、13.86%、10.66%（ $P<0.05$ ）。试验III组EAA/TAA最接近40%，EAA/NEAA比值最高，必需氨基酸指数（EAAI）最大，色氨酸（Trp）是第一限制性氨基酸；试验组的豆蔻酸（C12:0）、棕榈酸（C16:0）和硬脂酸（C18:0）含量显著减少，亚油酸（C18:1n9）显著增加；试验I组、II组、IV组的亚麻酸（C18:3n-3）含量显著增加（ $P<0.05$ ），试验III组的亚麻酸含量极显著增加26.44%（ $P<0.01$ ），棕榈油酸（C16:1）含量显著增加12.84%（ $P<0.05$ ）；试验组的饱和脂肪酸（SFA）显著降低（ $P<0.05$ ），试验III组的不饱和脂肪酸（UFA）显著提高9.22%，多不饱和脂肪酸（PUFA）显著提高13.88%（ $P<0.05$ ）、PUFA/SFA比值最大。试验III组的肌苷酸含量显著提高12.18%（ $P<0.05$ ）。研究表明，日粮中添加8%的发酵豆粕，显著提高了猪肉的营养价值，有效改善了猪肉的口感、香味及鲜味和风味。

**来源：**中国知网

**发布日期：**2022-03-14

**全文链接：**

<http://agri.ckcest.cn/file1/M00/03/2D/Csgk0Yazt16AUkNvABfDrSAeVgU505.pdf>