***Cite this as*:** Bin DAI, Yuan-shu ZHANG, Zi-li MA, Liu-hai ZHENG, Shuang-jie LI, Xin-hong DOU, Jian-sen GONG, Jin-feng MIAO, 2015. Influence of dietary taurine and housing density on oviduct function in laying hens. *Journal of Zhejiang University-Science B (Biomedicine & Biotechnology)*, 16(6):456-464. [doi:10.1631/jzus.B1400256]

Influence of dietary taurine and housing density on oviduct function in laying hens

Key words: Rearing pattern, Taurine, Laying hens, Inflammation, Oviduct injury

JZUS-B

This study mainly focused on the possibility of enhancing the health of laying hens by reducing housing density and by dietary supplementation with taurine and summarized the key roles they played in the following aspects:

- **Laying hen performance**
- **Histological examination**
- **Effect of taurine and different housing modes on NF-κB DNA binding activity**
- **Changes in iNOS**
- **Real-time quantitative RT-PCR analysis of gene expression**
- **Activities of SOD and levels of T-AOC and MDA in the oviduct**

JZUS-B

A series of comprehensive tables and figures were generated to show this research

Table 1 Composition and nutrient content of diets

Table 2 Survival rate, laying rate, daily consumption and daily gain of laying hens raised under different conditions

Fig. 1 Histology of the oviduct in laying hens. Oviduct sections are stained with H&E (original magnification 200 X)

Fig. 2 Effect of taurine on NF-κB DNA binding activity by EMSA analysis in oviduct tissue from laying hens

Fig.3 Changes in oviduct iNOs of laying hens housed in different conditions

Fig.4 Changes in TNF-α, IFN-γ, IL-4 and IL-10 gene expression in oviducts of laying hens housed in different conditions

Fig.5 Changes in SOD activity and T-AOC and MDA levels in the oviduct of laying hens housed in different conditions

Summarize

- Taurine has important protective effects against oviduct damage. Reducing housing density also results in less oxidative stress, less inflammatory cell infiltration and lower levels of inflammatory mediators in the oviduct. Therefore, both dietary taurine and reduced housing density can ameliorate oviduct injury, enhance oviduct health, and promote egg production in laying hens.

JZUSB