

## Summary

Due to excessive rises in global temperature, heat stress has become a severe hazard to the poultry industry in many nations that produce chicken. Heat stress can impact a bird's development, production level, reproductive activity, immune system, and digestive health, which can all have an impact on the bird's performance.

In my thesis I tried to overview the most important changes heat stress can cause in poultry meat and egg production as well as in the reproductive performance of birds. The most prominent signs of heat stress are found to be as follows:

Behavioral changes – panting, depression, respiratory alkalosis

- Performance changes – reduced feed intake, weight gain, meat or egg production, increased feed conversion ratio
- Quality changes – reduced carcass value and meat quality, reduced egg production, egg size and eggshell quality
- Physiological changes – increased oxidative stress, reduced immune response, leaky gut syndrome
- Reproductive changes – reduced hypothalamic control on reproductive functions, reduced ovary activity, affected spermiogenesis, lower level of egg fertility and hatchability.

Due to climate changes heat stress is common and becomes more and more frequent in different regions of the World, but Africa seems to be the most vulnerable continent. It is not always easy to prevent heat stress or at least to reduce its effects. However, the most important strategies are also collected in the thesis as follows:

- Management tasks – good ventilation, shades for birds in free-range management, drinking water supply
- Nutritional tasks – increased energy concentration in the diet, supplementing vitamins, minerals, using additives like pro- and prebiotics etc.

According to the literature data I have studied it is obvious that elevated temperature compromises poultry production efficiency and therefore further research is still needed to understand the molecular changes behind to venier and to create successful strategies to overcome its harmful effects as efficiently as it is possible.