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Adapting poultry production to climate change

Combined strategies for adapting poultry production to climate change (A. Collin)

Anne COLLIN

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Abbreviated title: Poultry production under climate change

Summary

Poultry meat and eggs are the primary sources of animal protein for human food across the world and their production has increased rapidly in the past decades. However, the poultry production chains, as other livestock sectors, are vulnerable to climate change, particularly to the global warming and its direct and indirect consequences. To face the consequences of climate change, it is necessary to build-up adaptive strategies at the animal level, to increase resilience by improving bird genetics (inclusion of indicators for general resilience to environmental disturbances in breeding goals), physiology (thermoregulation, efficiency for meat and egg production) and health. It also requires finding solutions at the system production level to understand the shifts in the geographic ranges of diseases related to climate change and to introduce mitigation practices to reduce energy consumption and greenhouse gases emissions. These strategies have to take into account the growing social demand for ethical animal

productions in the One Health and One Welfare perspectives and to limit the competition between human and animals for food under climate change.

In this context, interdisciplinary research is needed. Projects focusing on genetics, technical methods (such as early thermal programming), engineering solutions, innovative nutrition and breeding strategies are being developed. They aim to improve poultry thermoregulatory abilities, housing facilities, the design of outdoor areas, and address the issue of water availability, feed efficiency, the use of suboptimal feed resources and by-products or newly available feedstuffs (insects, etc.). Some strategies favour circular economy and species associations for improving the feeding system efficiency, limiting parasite expansion, and decreasing the nutritional dependency to soya thus restricting the adverse effects of its production on deforestation and biodiversity. The present review provides some examples of levers of improvement and adaptive strategies to make poultry production systems more resilient in the context of climate change.

Keywords: heat tolerance, nutrition, genetics, epigenetics, sustainability, circular economy, biodiversity, One Welfare