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Breeding for better welfare: genetic goals for broiler chickens and their parents

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Abstract

Genetics is key to the improvement of welfare in broiler chickens at both juvenile and adult (breeder) stages but progress is hampered currently by the seemingly conflicting demands of welfare, commercial production, food security and calls for increasing intensification to curb climate change. Animal welfare is therefore most likely to be improved on a commercial scale by future breeding programmes that incorporate multiple goals of different stakeholders as far as possible and give higher priority to animal welfare. These include: i) broilers with high welfare traits; ii) broiler breeders that do not need feed restriction; iii) birds that can be grown in an economically profitable way; iv) birds with low disease levels without the need for routine medication; v) chicken meat that is healthy and good for humans to eat; and (vi) broilers and breeders that thrive in systems that are environmentally sustainable. Progress towards achieving these goals is hampered currently by the assumptions that high juvenile growth rate is incompatible with good welfare and that feed restriction in adults is inevitable with fast-growing juveniles. We challenge these assumptions at both genetic and whole-animal level and argue that the conflict between good welfare and productivity can be reduced by making use of all available genetic variation from existing breeds and other sources and selecting birds in the range of environments they will encounter in commercial production.

Keywords: *animal welfare, broiler breeders, broiler chickens, genetics, growth rate, production*