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# Phenotypic Traits as Reliable Indicators of Fertility in Male Broiler Breeders FREE

S. McGary, I. Estevez , M. R. Bakst, D. L. Pollock

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## Abstract

Genetic selection procedures applied to improve broiler performance may negatively impact the subsequent reproductive efficiency of breeders, particularly in males. Identification of traits that reliably indicate individual male fertility would facilitate selection for reproduction. We hypothesized that physical traits, such as comb area, relative testicular weight, and testicular weight asymmetry, may correlate with fertility in two male-selected primary broiler breeder strains (A and B). Thirty males per strain, individually housed with an average of 10 females, were evaluated at five age periods within the 30-to-50-wk breeding cycle. Flock fertility by candling eggs at Day 19 of incubation and sample fertility by visual assessment of the germinal disc were determined. Sperm penetration (SP) through the perivitelline layer was assessed. Comb area was evaluated by image analysis at 40 and 50 wk, and relative testicular weight was measured at 50 wk. Strain A sample and flock fertility ( $P < 0.001$ ) and SP values ( $P < 0.0001$ ) were significantly lower than Strain B. Both strains had a significant decline of fertility and SP with age ( $P < 0.0001$ ). Strain A comb area correlated with sample fertility ( $P < 0.05$ ), flock fertility ( $P < 0.05$ ), and relative testicular weight ( $P < 0.01$ ). Conversely, Strain B relative testicular weight correlated with sample fertility ( $P < 0.0001$ ) and flock fertility ( $P < 0.001$ ). Significant correlations were not found between testicular weight asymmetry and other reproductive traits. Results suggest comb area may be a reliable indicator of male fertility in Strain A.

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