

Service cock only indirectly affects hatchability in laying hens

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Abstract :

The purpose of the study was to investigate the effect of service sire on fertilization rate and losses during hatching as a way of increasing the accuracy of breeding value estimation of layers for hatchability. Layers from five generations of two breeds – Rhode Island White and Rhode Island Red – were individually recorded for fertilization rate, percentage of chicks hatched from eggs laid, set, and fertilized. Two statistical models, both fitting random animal additive genetic and permanent environment effects along with fixed joint effect of hatch-year × hatch-number, differed with regard to presence or absence of random effect of service sire. Of the traits studied fertilization rate is least influenced by service sire which can be neglected when evaluating fertilization. Although service sire effect is small, both absolutely and relatively, failing to account for it in a model evaluating number of chicks hatched may result in substantial overestimation of heritability. Service sire effect accounted for in the model can also add to the accuracy of the hens' proofs for hatchability. Correlation between direct additive and service sire effects may be dependent on the population it is estimated in.

Key Word :

hatchability, laying hens, service sire, variance components

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