

Effect of crossbreeding on fertility, hatchability and embryonic mortality of Nigerian local chickens

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Abstract A total of 970 eggs were collected from matings involving three genotypes of Nigerian local chickens (Normal-feathered, Frizzle-feathered and Naked neck) and one exotic broiler breeder strain (Anak Titan) to evaluate the effect of crossbreeding on fertility, hatchability and embryonic mortality. Mating was achieved through artificial insemination. Sire genotype significantly ($P < 0.05$) affected percent fertility and percent dead-in-shell. Naked neck sire genotype had the highest dead-in-shell (19.5%) with the least being 7.5% for Frizzle-feathered chickens. Frizzlefeathered sire genotype had the highest fertility (90.5%) and hatchability (91.4%). Dam genotype had a significant effect ($P < 0.01$) on fertility and hatchability, with Anak Titan dam having the highest fertility and hatchability of 88.2% and 94.6%, respectively. Fertility and hatchability were significantly ($P < 0.05$) influenced by the interactive effect of sire and dam genotypes with Frizzle-feathered \times Anak Titan having 98.5% fertility and 96.8% hatchability. Both straight and reciprocal crosses involving Frizzle-feathered genotype and Anak Titan resulted in higher mean values for fertility and hatchability when compared to crosses involving the other two local chicken genotypes. This result suggests that the use of the Frizzle-feathered genotype appears to be more desirable in fertility and hatchability trials.

Keywords: Chicken genotypes, Nigeria, Reproductive traits