

**HATCHABILITY PERFORMANCE OF DIFFERENT VARIETIES OF TURKEY**

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**ABSTRACT**

A study was conducted for a period of 12 weeks to analyze the hatchability performance of different varieties of turkeys at the age of 30-42 weeks viz Native Turkey, Nandanam Turkey-I and Nandanam turkey-II . The mean per cent fertility of different varieties of turkeys were differed significantly ( $P<0.05$ ). The native turkey recorded significantly low fertility when compared with others. Highly significant difference was observed between turkeys on mean per cent hatchability to total and fertile egg set. No significant difference was observed for mean per cent dead in germ and dead in shell in all varieties of turkeys.

**KEY WORDS** : Hatchability performance, Varieties, Turkey

**INTRODUCTION**

Fertility and hatchability are the major determinant of profitability in the hatchery enterprise. These parameters appear to be very important as far as parent stocks are kept to produce final hybrids. Hatchability is a complex age dependent trait. It comprises of several sub-traits which are susceptible to genetic and environmental factors arising from various sources. There are several factors that influence hatchability and fertility of eggs . At the same time, newly introduced turkey varieties should be studied as they will be used in the production system for the years to come. Hence, this study was conducted to compare the fertility, hatchability and associated reproductive traits among Native Turkey, Nandanam Turkey -I and Nandanam turkey-II.

**MATERIALS AND METHODS**

The present study was conducted for a period of 12 weeks to analyze the hatchability performance of different varieties of turkeys at the age of 30-42 weeks viz Native Turkey, Nandanam Turkey-I and Nandanam turkey-II maintained at Institute of Poultry Production and Management (IPPM), Madhavaram Milk Colony, TANUVAS, Chennai-51. Nandanam Turkey-I and Nandanam turkey-II was evolved by TANUVAS in the year 2006 and 2011 respectively. The standard feeding *ad libitum* and managemental practices were followed throughout the experimental period. The eggs were collected every morning, graded, fumigated and stored at 18°C with 80 per cent relative humidity for 7 days; they were brought to room temperature for one hour and incubated on 8<sup>th</sup> day and provided optimum temperature and humidity in setter and hatcher. The eggs were turned once in an hour. The eggs were transferred on 25<sup>th</sup> day to hatcher and turkey poults were taken on 28<sup>th</sup> day. Unhatched eggs were breakout to get infertile and embryonic mortality data. The percent fertility i.e. the quality or state of being fertile from a total egg set, total hatchability on eggs set i.e. is a measure of embryonic viability or the quality of being hatchable from a total egg set and hatchability on fertile eggs (fertile hatchability) and embryonic mortality like dead in shell ( the ratio of number of dead embryo in shell to the total number of hatching egg set) and dead in germ (the ratio of number of dead embryo in germ to the total number of hatching egg set) were worked out from a total of 30 hatches and 3560 of eggs set. The data were analysed as per Snedecor and Cochran, 1994.

**RESULTS AND DISCUSSION**

The Mean percent fertility, hatchability on egg set and fertile eggs, embryonic mortality are presented in Table.

The mean per cent fertility of different varieties of turkeys were differed significantly ( $P\leq 0.05$ ). The

**Table:** Mean per cent fertility, hatchability to fertile and total eggs set, dead germ and dead in shell of different varieties of turkeys (Mean±SE)

S. No	Parameters	Native Turkey	Nandanam Turkey -I	Nandanam Turkey-II	Overall Mean
1	Fertility*	75.93 <sup>b</sup> ± 2.98	80.42 <sup>a</sup> ±1.60	82.25 <sup>a</sup> ±1.24	79.53± 1.26
2	Hatchability to total eggs set**	51.17 <sup>b</sup> ± 3.52	60.65 <sup>a</sup> ±3.37	63.06 <sup>a</sup> ±2.81	58.29± 2.04
3	Hatchability to fertile eggs set *	67.36 <sup>b</sup> ± 3.85	75.06 <sup>a</sup> ± 3.14	76.49 <sup>a</sup> ±2.77	72.97 ±1.97
4	Dead in germ <sup>NS</sup>	17.18±2.22	13.02± 1.70	14.29±3.42	14.83± 1.46
5	Dead in shell <sup>NS</sup>	15.44±3.43	11.91± 2.85	8.53±1.55	11.96 ±1.60

\*\*Mean bearing different superscripts within the row differ significantly ( $P<0.01$ )

native turkey recorded significantly low fertility when compared with others. The over all mean per cent fertility was 79.53 per cent.

The native turkey recorded significantly low ( $P\leq 0.01$ ) hatchability to total eggs set. Highly significant difference was observed between turkeys on mean per cent hatchability to total egg set and significant difference ( $P\leq 0.05$ ) was observed for mean per cent hatchability to fertile egg set. Genetic factors might be the reason for the above differences in observations. Mean per cent hatchability on fertile egg set observed in our study lower than the earlier workers Anna Anandh *et al.* (2012) and Richard Jagatheesan *et al.* (2010) they observed an average of 81.00 per cent and 85.35 per cent in Broad Breasted Bronze turkey and better than the finding of Mroz *et al.* (2008) who observed 72.33 per cent total hatchability in Broad Breast White turkey.

No significant difference was observed for mean per cent dead in germ and dead in shell in all varieties of turkeys. This finding is lower than the result of Richard Jagatheesan *et al.* (2010) who observed 5.16 per cent of dead in shell and 9.48 per cent dead in germ. Total embryonic mortality observed in our study was better than Premavalli *et al.* (2010) who observed 42 per cent mortality in turkey. In our study significant difference was observed in mean per cent fertility, hatchability to total egg set and hatchability to fertile egg set and no significant differences were observed in dead in germ and dead in shell in all varieties of turkeys.

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