THE EFFECT OF VARIOUS SANITIZING AGENTS ON THE ECONOMICS OF HATCHING KUTTANAD DUCK EGGS

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ABSTARCT

An experiment was conducted to evaluate the economics of various sanitizing agents for hatching eggs of Kuttand ducks (*Anas platyrhynchos domesticus*). A total of 2400 hatching eggs in four groups with 600 eggs in each group over a period of six weeks was collected for the study. The selected eggs were randomly allotted to the various cleaning methods (dry cleaning, luke warm water wash, glutaraldehyde wash and sodium hypochlorite wash) and the calculations were made on the basis of cost involved in washing/cleaning of eggs, percentage of hatchability and cost of day old ducklings. The findings of the present study revealed that the highest net return was obtained for dry cleaning of eggs, which indicated that egg without washing is more beneficial and profitable.

KEY WORDS: Sanitizer, Glutaraldehyde, Sodium hypochlorite

INTRODUCTION

Hatchability is an important economic trait and represents a major component of reproductive fitness in domestic poultry especially in waterfowls. The main factor that influence duck egg hatchability in artificial incubation may be the microbial contamination of eggs and presence of dense cuticle (Whittow 2000; Fernandez *et al*., 2001). The presence of dense cuticle around the egg causes difficulty in oxygen flow to the embryo and the escape of carbon dioxide and water vapour from the egg. In order to obtain optimal hatchability and quality ducklings, embryo needs a sufficient amount of oxygen to maximize the use of yolk for body development. In this regard cuticle removal can be advocated in hatching eggs and for this sodium hypochlorite solution (Peebles *et al.,* 1987) can be used as well as some sanitizing agents is required to control microbial population on the shell surface of hatching eggs. Hence, a study was carried to work out the economics of various egg sanitizing agents on hatchability of duck eggs.

MATERIALS AND METHODS

An experiment was conducted in the Department of Poultry Science, College of Veterinary and Animal Sciences, Mannuthy, Kerala Veterinary and Animal Sciences University to work out the economics of egg sanitizing agents on hatchability of duck eggs.Hatching eggs used in the study were obtained from a Kuttanad breeder flock aged 30 to 36 weeks at University Poultry and Duck Farm, Mannuthy in semi intensive system of rearing under standard husbandry conditions. In breeding flock, 1:6 ratio of the male female was maintained . The eggs were gathered manually at 8 am daily for hatching purposes.

A total of 2400 hatching eggs over a period of six weeks were collected for the study. Each treatment consisted of 600 eggs in 6 replicats with 100 eggs per replicate. The selected eggs were randomly allotted to the following treatments. T1- Cleaning eggs with dry muslin cloth, T2- Washing eggs with luke warm water ($40^{0}C$) for 5 minutes, T3- Washing eggs with 0.3 per cent glutaraldehyde solution at $40^{0}C$ for 5 minutes, T4- Washing eggs with 2500 ppm sodium hypochlorite solution at $40^{0}C$ for 5 minutes.

Standard incubation procedure was followed after the treatment of eggs. The hatch was taken after 28 days of incubation. The hatchability percentage for each treatment group was calculated as a percentage of hatched ducklings to the total number of fertile eggs. The net return over use of chemicals for sanitizing eggs were calculated based on the cost of Sodium hypochlorite, Glutaraldehyde and market rate of one hatched duckling prevailing during the year 2012.

RESULTS AND DISCUSSION

The data on Economics of hatch of duck eggs are presented in the following Table.

The effect of various egg sanitizing agents on economics of hatch (for 100 hatching eggs)

Parameter	T1 (Dry cleaning)	T2 (Luke warm water)	T3 (Glutaraldehyde)	T4 (Sodium hypochlorite)
Chemical cost for sanitizing 100 eggs (In Rupees)	0	0	43.00	152.00
Hatchability percentage	62.48	53.20	60.79	63.39
Revenue from day old ducklings @ Rupees 25	1562.00	1330.00	1519.75	1584.75
Net return (In rupees)	1562.00	1330.00	1476.75	1432.75

Chemical cost of sanitizing per egg was zero, zero, 0.43 and 1.52 rupees respectively for T1, T2, T3 and T4. Revenue from day old ducklings @25 rupees per duckling were 1562, 1330, 1519.75 and 1584.75 respectively. The highest net return was recorded in T1, dry cleaning (Rs. 1562) followed by T3, Glutaraldehyde (Rs. 1476.75), T4, Sodium hypochlorite (Rs. 1432.75) and T2, luke warm water (Rs. 1330) respectively.

The highest net return obtained for dry cleaning of eggs indicated that egg without washing is more profitable.

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