

**PRELIMINARY STUDIES ON THE FOWL SEMEN
DILUTION AND EFFECT OF SEMEN DILUTION ON
THE EGG FERTILITY**

A dissertation submitted to the
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
in partial fulfillment of the requirement of
the degree of
Bachelor of Animal Science

by

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**Animal Science Degree Programme
Faculty of Animal Science and Export Agriculture
Uva Wellassa University
2013**

ABSTRACT

Broiler farming is considered as a main component in livestock sector in Sri Lanka and day old broiler chick production is impotent for maximizing broiler production. Introduction of artificial insemination (AI) programs with diluted semen will be a suitable alternative for natural breeding overcoming the limitations of natural breeding. Therefore, present study was conducted with the objectives of developing a suitable poultry semen diluent and comparison of the efficiency of different breeding methods in poultry. Two semen diluents; modified Ringer's solution and modified Ringer's solution with fructose was evaluated for sperm viability. Semen samples were collected from 46 weeks old male birds and semen volume was measured using a pipette. Spermatozoa concentration and semen mortality were evaluated by heamocytometer method and microscopic observation, respectively. Three different breeding methods which include natural breeding, artificial insemination without semen dilution and with semen dilution were practiced for breeding stock. AI program continued after three days interval and egg collection was done daily. Eggs were incubated and determine the fertility on day 18 and after hatching; hatchability percentage was estimated. Modified Ringer's solution with fructose was selected as the most suitable semen diluent for the further experiment. The average ejaculatory semen volume 1 mL with 15.6×10^8 sperm/mL spermatozoa concentration. pH level of the sample is 8.2. There is a significantly higher egg fertility and egg hatchability in AI with semen dilution and without semen dilution group compared to natural breeding ($p < 0.05$). Artificial insemination is a better alteration for improving egg fertility and egg hatchability. Since there is no significant different in egg fertility and hatchability in AI with diluted semen and undiluted semen, the use of diluted semen will increased the utility of available poultry semen.