

INVESTIGATION OF CYCLE SYNCHRONIZATION AND ARTIFICIAL INSEMINATION FOR BREEDING INDUSTRY IN RABBITS

Nguyen Thi Hong^{1,2}, Nguyen Thi Uoc^{1,2}, Duong Dinh Long¹, Phan Ngoc Minh¹, Nguyen Viet Linh², Nguyen Thi Nhung¹, Nguyen Khac Tich¹, Bui Xuan Nguyen^{1,2}

¹Southeast Asian Biotechnology Center, Hoalac, Hanoi, Vietnam

²Institute of Biotechnology, VAST, Nghia Do, Hanoi, Vietnam

Introduction

A program of developing rabbit breeding at large industrial scale has been developing in Vietnam in recent years. The purpose of this study is to establish a method of cycle synchronization using eSG and HCG produced by Southeast Asia Biotechnology Center (SABC) for developing rabbit artificial insemination (A.I) under conditions of intensive farming.

Materials and Methods

Experiments were carried out on New Zealand white rabbits with average initial age of five months, including 45 does and 15 bucks. Estrus synchronization and ovulation induction were conducted using ECG and HCG produced by SABC. The experimental rabbit does were divided into 3 groups (5 does/ each, 3 replicates): First group (G1) considered as a control group including does with natural estrus and mating was carried out with fertile bucks. The second group (G2) included does with natural estrus receiving A.I and administration of a dose of 50 IU/animal of HCG (i.m) at the time of insemination to induce ovulation. The third group (G3) included does treated of estrus synchronization by administration (i.m) of a dose of 60 IU eSG/doe 48 h before A.I and 50 IU/animal of HCG (i.m) at the time of insemination. For A.I, two ejaculates with an interval of 30 min per male were collected using an artificial vagina 1 h before the insemination. Sperm evaluation including volume, mass motility and percentage of motile sperm were estimated according to the methods described by Beatty (1957) and Björndahl et al, (2003). Ejaculates possessing more than 70% of motility rate were used for dilutions in TCG (Tris-Citric-glucose buffer) at concentration 100×10^6 sperm/ml. Does were inseminated with 0.5 mL of semen dilution containing 50×10^6 million total sperm/female. Hand palpation at twelve days post mating was carried out to detect the pregnancy. Pregnancy rate at D12, pregnancy rate at birth (number of does giving birth), number of total and live-born, number of kits/does were noted after kindling. A χ^2 -test was performed to study differences between treatments.

Results and Discussion

The pregnancy rate estimated at D12 was 77, 80 and 80 % and pregnancy rate at birth was 66, 80 and 80 %, respectively for the groups 1, 2, and 3. The total number of kits born were 65, 88 and 103, indicating the mean number of kits born/recipient 6.5 ± 0.5 ; 7.3 ± 0.5 ; and 8.6 ± 0.4 , respectively for the groups 1, 2, and 3. In conclusion, the obtained results showed significant positive influence of treatment method on the does kindling. The produced eCG and hCG can enhance the application of artificial insemination to improve reproductive efficiency in rabbit intensive industrial production.

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