

USE OF DIFFERENT ANTILUTEOLYTIC STRATEGIES TO IMPROVE FERTILITY IN CATTLE

By

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B. Sc. Agric. Sc. (Animal production), Cairo University, 1999.

M.Sc. Agric. Sc. (Animal Nutrition), Zagazig University-Benha Branch, 2005.

**A thesis submitted in partial fulfillment
of
the requirements for the degree of**

DOCTOR OF PHILOSOPHY

**in
Agricultural Science
(Animal physiology)**

**Department of Animal production
Faculty of Agriculture
Ain Shams University**

2013

Approval Sheet

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ABSTRACT

Al-Moataz Bellah Mahfouz Mostafa Shaarawy: Use of Different Antiluteolytic Strategies to Improve Fertility in Cattle. Unpublished Ph.D. Thesis, Department of Animal Production, Faculty of Agriculture, Ain Shams University, 2013.

The aim of the present study was to decrease early embryonic loss by elevate progesterone level to normal levels in dairy repeat breeder Friesian cattle. Two field experiments were conducted; the first was conducted in a governmental experimental station to determine the effect of hCG, GnRH, or P₄ administration after artificial insemination (AI) on luteal function, serum progesterone concentration and some reproductive performance of repeat breeder Friesian cows during winter and summer seasons. In this experiment 48 Friesian cows (24 in winter and 24 in summer) were used in the second and third parity and distributed equally to 4 sub groups. After AI, cows in each season were assigned randomly to four equal groups after balancing for daily milk production and parity as follows: G1 (n=6) received an intramuscular injection of 3000 IU hCG (Pregnyl, Novarel) on the 7th day after AI. G2 (n=6) received 100 mg of progesterone (Prontogest, Marcyrl) intramuscularly on the 2nd, 3rd, 4th, 6th and 9th days after AI. G3 (n=6) received an intramuscular injection of 10 µg GnRH (Receptal, Intervet) on the 12th day after AI. The last group; G4 (n=6): cows were left untreated and served as control.

Diameter and induction of corpora lutea were significantly ($P<0.05$) increased by hCG and GnRH treatment. However, in winter and in the 2nd parity, diameter of corpus luteum was significantly ($P<0.05$) improved as compared with summer and the 3rd parity, but induction of accessory corpora lutea was insignificantly improved. Concentrations of progesterone in serum

were significantly ($P<0.05$) increased in treated cows compared to the control. The results demonstrated that treated cows were more responsive in winter than in summer as indicated by serum progesterone concentration. Compared to control group, it was identified that GnRH or hCG administration significantly ($P<0.05$) increased conception rate and decreased days open. Number of services/conception was reduced by hormonal treatments but differences were not significant.

Second experiment was conducted in a commercial farm 18 German Friesian heifers and cows were divided into 2 equal group: G1 ($n=9$) treated with 3000 IU and G2 ($n=9$) untreated as a control group. In the second experiment hCG treatment improved insignificantly number of services/conception and conception rate in comparison with control group. Number of services/conception was improved insignificantly in control cows in commercial farm compared to experimental station. However, treated cows by hCG improved number of services/conception in experimental station in comparison with commercial farm.

In conclusion, this study supports the use of either hCG, or GnRH post-insemination as a method for enhancing pregnancy rates in lactating repeat breeder dairy cattle especially in summer under Egyptian condition.

Key words: hCG, progesterone, GnRH, seasons, parity, corpus luteum, conception rate, days open, Friesian cows.

ACKNOWLEDGEMENTS

Praise and prayerful thanks to our Merciful God for everything. The author wishes to express his great indebtedness, deepest gratitude and sincere appreciation to Dr. Farouk A. Khalil, Professor of Animal Physiology, Department of Animal Production, Faculty of Agriculture, Ain Shams University for his close supervision, guidance and valuable help in writing, preparing and revising the manuscript.

The author also expresses his great gratitude and deepest thanks to Dr. Esmat Bakrey Abd-Alla, Professor of Animal Physiology, Department of Animal Production, Faculty of Agriculture, Ain Shams University for his supervision, help and encouragement.

The author wishes to express his sincere appreciation and deepest thanks to Dr. Mostafa Kotb Soliman El-Banna Chief Researcher of Animal Reproduction Physiology, Cattle Breeding Research Department, Animal Production Research Institute, Ministry of Agriculture, for his supervision, and providing facilities and valuable help throughout this study.

The author also wishes to express deepest thanks and his sincere appreciation to Dr. Mostafa Said Fadel Professor and Head of Ultrasound Unit, Animal Reproduction Research Institute, Ministry of Agriculture, for his help and encouragement.

The author also thanks and deep gratitude to Dr. Sabry Hemida Hassanin, Professor of Animal Physiology, Department of Biotechnology, Faculty of Science, Taif University for suggesting and planning the work, close and kind supervision.

The author would like to thank the manager and all his colleagues and workers in the Animal Breeding Experimental Station in "Karada", in "Delta Misr for Agriculture Investment and Animal Production", Cattle Breeding Department and Animal

Production Research Institute for their valuable help and encouragement during all of stages of this study.

Sincere gratitude and thanks are expressed to all members of my family for their support, patience and encouragement during the course of the study.

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LIST OF ABBREVIATIONS

AI	Artificial insemination
BW	Body weight
C	Celosias
CIDR	Controlled internal drug releasing device
CL	Corpus luteum
d	Day
DM	Dry matter
E ₂	Estradiol 17
FSH	Follicle stimulating hormone
GnRH	Gonadotropin-releasing Hormone
h	Hour
hCG	Human chorionic gonadotrophin
HS	Heat stress
i.m.	Intra muscular
IU	International Unit
kg	Kilogram
LH	Luteinizing hormone
mg	Milligram
ml (mL)	Milliliter
n	Number
ng	Nano gram
P4	Progesterone
PRID	Progesterone releasing-intervaginal device
TAI	Timing artificial insemination
TN	Thermo neutral
µg	Microgram

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